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Founder and Editor: STANLEY SPOONER

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EDITORIAL COMMENT

HE Atlantic has at last been crossed in the air and another milestone added to the road of aeronautical progress. By his arrival at Plymouth on Saturday last Lieut.-Commander Read and his machine have created a new record to stand for all time.

We have not the slightest desire to belittle what is undoubtedly a very fine performance, but we should not be doing our duty to the future if we refrained from pointing out that, stripped of the glamour of being the first time an aircraft has crossed the Atlantic, the circumstances of the flight are such as to make it rather less wonderful than the simple record would be. As a matter of fact the flight has nothing much of the spectacular about it—it was rather a triumph of

organisation than anything else, and it is to the American Naval authorities no less than to Commander Read and the crew of N.C. 4 that the success of the cross-Atlantic flight is due. For weeks the whole route has been patrolled and marked out by ships of the U.S. Navy, each acting as a kind of mark-boat for the adventure and as possible saviour of the crews of the seaplanes in the event of mishap. Nothing has been neglected that could make the success of the flight a matter of almost mathematical certainty, and it has succeeded almost as a matter of course. At the same time, Commander Read and his crew are certainly to be very greatly congratulated upon the successful issue of an enterprise which they were actually the first to essay, and it will be their names which will be handed down to history as being those of the first men to cross the Atlantic in the air.

**The
Prospects
for the
Daily Mail
Flight**

We are confident that before the end of the summer one of the several competitors, now getting ready their machines in Newfoundland, will succeed where Hawker and his navigator, Commander Mackenzie-Grieve, just failed so magnificently, and will cross the Atlantic within the day. Which of them it will be we had rather not prophesy—nor does it greatly matter—but it must surely fall out that one of them must be sufficiently favoured by the gods to accomplish the feat.

Apparently Hawker is not to try again. The Sopwith Co. have had their trial and failed by the sheerest bad luck, and, like good sportsmen, they are leaving the field open to others. It is rather hard luck that the man who took his fate in his hands and went off "into the blue" in order that Britain should at least make a fight to be first across, should be debarred from the further trial he would probably like to make. Still, it has to be recognised that these Transatlantic "flips" are wildly expensive matters to finance, and we do not wonder the Sopwith Co. has made up its mind that it is not good enough to devote further time and money on another trip. We should imagine that each of the other contestants has equally made up his or their minds that the one trial will be quite enough, win or lose. Certain it is that if and when the Atlantic is crossed later in the summer the loud pedal will not be quite so much in

**The
Crossing
of the
Atlantic**

action. And this is, perhaps, not so unnatural, as, after all, with unalloyed success, the excuse for the nation being able to so vociferously welcome back "from the dead" two of its fearless pioneers, will no longer hold.

The Oil Find in Derbyshire

The past week may quite possibly mark an epoch in the history of this country, since it has seen the announcement that at last oil has been discovered in circumstances which make it more than probable that there is sufficient petroleum beneath the strata of the United Kingdom to render us at least partially independent of imported oil fuel. It is too early yet to speak with certainty. All we know is that the indications are so far favourable and that the experts are more than satisfied with the prospects. Briefly, the story of the discovery simply is that at Hardstoft, in Derbyshire, where Lord Cowdray's experts are sinking experimental bore-holes, oil has been found in sufficient quantity to cause it to rise 1,000 ft. in the well-casing when the oil-bearing sand had been barely scratched. In the meantime nothing can be known as to the value of the "strike" until the necessary measures have been taken to control the gush of oil which may be justifiably expected when the bore is sunk deeper through the oil-sand.

What this may mean, if anticipations are justified, hardly needs elaboration. The effect of a real oil discovery in this country on the future of transport, and particularly of aviation, is almost incalculable. It is a truism that without oil fuel there can be no aviation—at least, so far as we are able to divine at present. There is apparently no immediate prospect of a world shortage of oil through the failure of natural supplies, but there is no doubt the future is full of anxiety to a country which is absolutely dependent upon imported supplies of so essential a commodity as oil fuel. During the War it is a matter of common knowledge that we had to import every gallon of oil fuel for the Navy, and every gallon of petrol for the Air Forces, and for mechanical transport needs, from beyond the seas. Nor must we forget that the seas were for most of the time infested by the enemy's submarines, and that had he pressed his campaign against our shipping with anything like the vigour we might have expected, or displayed conspicuous ability and enterprise, he might well have closed the ocean routes to our shipping. How nearly he came to doing so may be generally made known one day. It is perfectly clear that never again should he be placed in such a position, if by any human foresight it can be avoided. All our potential sources of fuel within these islands must be developed to the utmost, not only that we may never again be in such danger from an enemy, but in the interests of transport development in general.

It is true that in the cannels and shales we have vast potentialities of fuel production, but their development must of necessity be slow. Again, we hope for much from the proper encouragement of alcohol as a motor fuel. But these are, so to say, but auxiliaries to the natural product, and if England does, in fact, possess an oilfield of even average richness, it is obvious that the whole of the fuel outlook will have materially changed for the better. It is scarcely probable that we shall ever become an oil-exporting country, whatever the character of the

fields may be. We can find a use for every gallon of fuel that is likely to be produced here from every source imaginable, but at least we may look forward with hope to an easement of the situation as it exists at present, and to a time when the users of oil fuel will no longer be at the mercy of the importers' ring. But it will not do to go too deeply into speculation until we know exactly where we stand and precisely how much is to be hoped from the development of the new discovery.

Reverting to Pre-War Methods

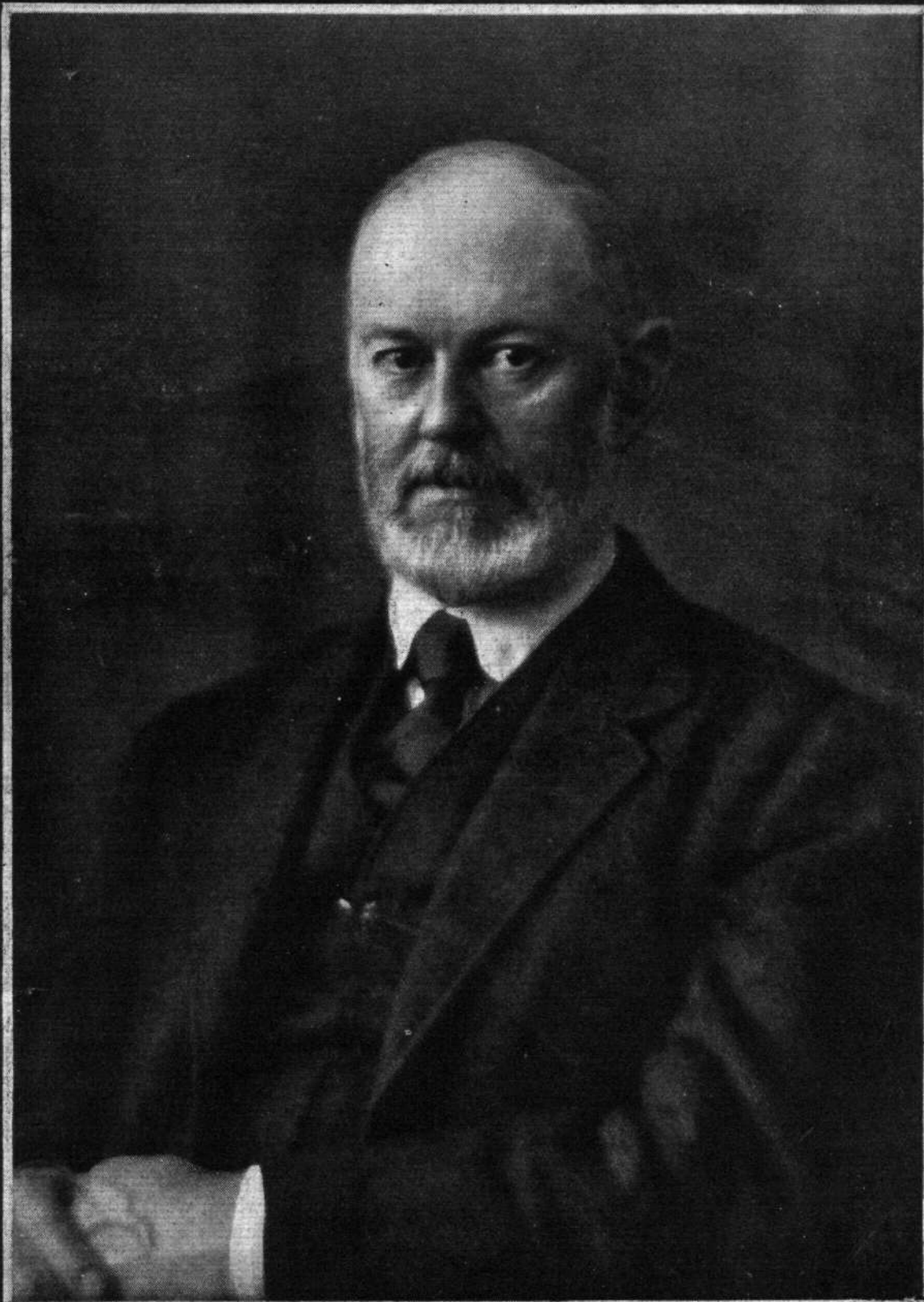
An agreed Bill for the restoration of pre-War trade practices was introduced by the Minister of Labour in the House of Commons last week. It appears that considerable difficulties have arisen between the Government, the employers and the trade unions in arriving at a common ground of agreement, since this is the third Bill of the kind to be published. There is no necessity for us to reprint the full text of the Bill, which seems to us to be one of the gravest importance. The whole *gravamen* of the measure is contained in the first two clauses, which read as follows:—

"1.—(1) Where, in any establishment to which this Act applies, any rule, practice or custom obtaining before the War in any industry or branch of an industry (hereinafter referred to as a trade practice) has, during and in consequence of the present War, been departed from, the owner of that establishment shall be under an obligation, at the expiration of two months from the termination of the present War, to restore or permit the restoration of the trade practice so previously obtaining, and for one year after such restoration is effected to maintain or permit the continuance of the trade practice.

"(2) Where any industry or branch of industry, which before the War was not carried on in an establishment, commenced to be carried on in the establishment during the War and continues to be carried on therein after the termination thereof, or where the establishment is one which commenced to be worked after the beginning of War, the owner of the establishment shall be under the obligation, at the expiration of two months from the termination of the present War, to introduce or permit the introduction of, and for one year after such introduction is effected to maintain, or permit the continuance of, such trade practices as obtained before the War in other establishments where that industry or branch was carried on under circumstances most nearly analogous to those of the establishment in question."

We agree that the Government was in honour bound to bring in such a measure and, if the trades unions insist upon it, Parliament is equally bound to pass it. The Government of the day gave a solemn pledge to the unions that in consideration of certain practices being suspended during the period of the War, in order that maximum output should be achieved, one of its first acts after the conclusion of hostilities should be to restore those practices. We, and with us all who foresee that the only way for this country to maintain its position is by accelerating production, had hoped that the lessons of war production would have impelled the trades unions to reconsider the position. But it appears that such a hope was as vain as most others which are based upon a broad, sensible view of things as they are being taken by organised labour. What this Bill means, if it means

Flight—And the Men



MR. F. H. ROYCE, Engineer-in-Chief of Rolls-Royce, Ltd.

anything at all, is that the unions are to revert to their pre-War position of being above the law, and that they are once more to be free to restrict output by insisting upon the policy of "ca' canny." Once again we shall see industry back to the state in which the good workman is not allowed to give of his best, in order that the slacker and the unskilful shall not be discovered. By restrictive measures such as ruled before the War the latter was able to earn a living wage, while the former could get no more in spite of his superior ability. Altogether, the "trade practice" of levelling down output was a most damnable institution and one that stands condemned by every sensible person on every possible count. If the effect of such restrictions was confined to the individual workers, it would not greatly matter. If a good, industrious workman is such a fool as to be deluded into restricting his own earning power in order that an inferior craftsman may be enabled to keep pace with his earnings, so much the worse for the former.

Unfortunately, these are not the only effects. The whole industrial scheme of the country is affected, and it becomes clear that, under the scheme of "trade practices," we shall be left hopelessly behind in the race for the world's markets. We cannot dream of competing with America where there are no such practices, and where the craftsman is free to earn the maximum allowed by his ability. Nor, even with the aid of the most scientifically-developed machinery, can we hope to hold our own with such new industrial nations as China and Japan who are becoming formidable competitors in the Eastern markets.

Unless labour allows the scales to fall from its eyes and realises that the ideals underlying "trade practices," where these act in restraint of output, are based on altogether wrong premises, there is very little hope of Great Britain being able to hold her own among the manufacturing nations of the world.

A Chair of Aeronautics

We are very pleased with the announcement that it has been decided to institute a Chair of Aeronautics at the London University, tenable at the East London College. We believe this has been in contemplation for some little time, but that the consummation of the idea has been delayed in consequence of more or less active opposition from quarters in which we should have expected welcome and assistance for any scheme for the furtherance of scientific study in connection with aeronautics. There is no need for us to be any more specific than this just now. There may be more to be said about the official attitude towards the professorships later on, but for the moment it is enough to say that there has been some amount of totally inexplicable opposition.

It may be as well to say that the foundation of the Chair has absolutely nothing to do with the Zaharoff gift for the establishment of a similar chair at one of the older Universities—a matter which those responsible for the administration of the gift do not appear to have seriously approached as yet. This is a matter which concerns the University of London alone, which has, entirely of its own initiative, arrived at the conclusion that the scientific study of aeronautics should be at once placed on a sound and proper basis, under the guidance of a competent scientist, and that it is the business of the University to do what it can to assist in filling the hiatus. We need hardly say that we welcome the action of the

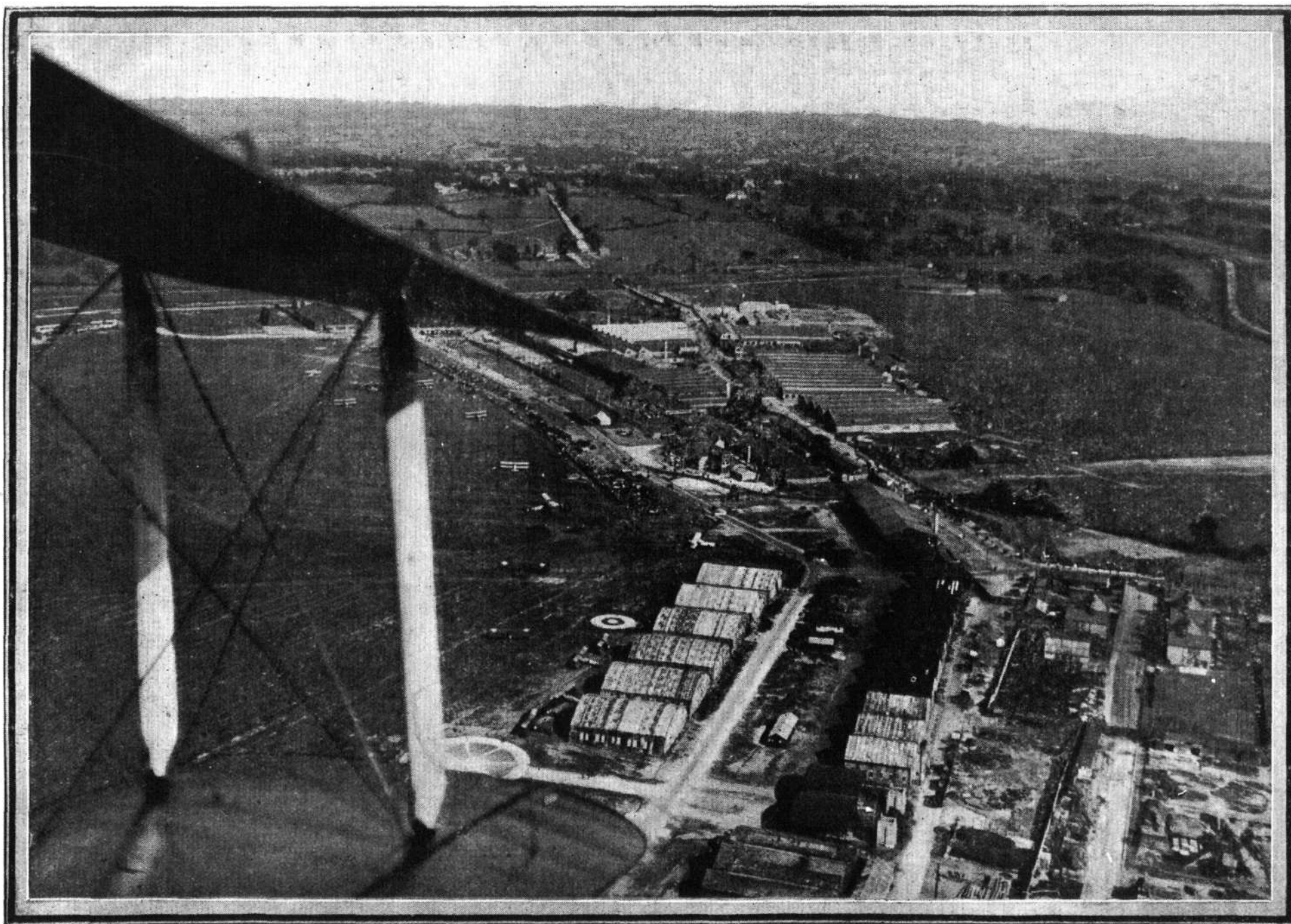
University. There are at the present moment hundreds of young men, highly qualified pilots many of them, who are desirous of adopting aeronautics in one or other of its phases as their life's career. They know all there is to be known about the purely practical side of flying, but are very children in its scientific bearings. To such the new departure of the London University means a great deal. It will place at their disposal a highly scientific training with the hall-mark of a London degree at the end for those whose aspirations lead them that way. In every case it promises to raise the standard of aeronautical study to a very much higher plane than it has occupied hitherto.

By the way, and while we are on the subject of scientific training, what has become of the memorandum which the Air Ministry was supposed to be going to issue some time ago? And has the delay in its issue any bearing on the opposition to the East London professorship of which we have spoken? It would be interesting to know.

We are glad to see the idea of the Flying Clubs institution of Flying Clubs is spreading.

We do not mean the ambitious schemes which are on foot in some parts of the country, which include the possession of palatial hotels or club-houses, but the banding together of a few men of moderate means to share the cost of small aerodromes and a machine or two for communal use. It is suggested that the best way to do this would be to form a large number of such clubs, affiliated to some central body. The Royal Aero Club, we suggest, might say what it thinks of the idea. In this way arrangements might be made with a large number of aerodromes all over the country, and members could make flying week-end visits from one to the other on machines in which each member's share would be comparatively small. A certain number of trained mechanics might be required, but probably a good deal of the overhauling and repair work could be done by the members in their spare time whilst the regular staff of the aerodromes would no doubt always be available for emergency.

This opens up quite a tempting prospect. The co-operative idea is good and we think would work reasonably well. Rigid methods of inspection of such machines, however, would be a necessity, else we fear the toll of accidents might be initially heavy. We are not altogether enamoured of the machine which has been overhauled and repaired in spare hours by amateur mechanics who may or may not know anything about the job. Youth in particular is apt to chance things a little too much, and it would obviously be to the youth of the country that the idea of the flying club would appeal most. However, this is a detail which we doubt not can be easily provided against and does not in the least militate against the basic idea of community of interests in flying. As a matter of fact, we regard the idea as essentially valuable, inasmuch as it can only be through something of the sort that flying can more quickly be brought within the reach of the man of restricted means. Without such organisation of the pleasure side of aviation, it may have for years to come to remain the pursuit of the privileged few who are able to command a good deal of money and who do not mind spending round sums on a favourite hobby.



HENDON FROM ABOVE.—A view of the sheds and enclosures snapped by our photographer from an Airco (de H. 9) machine, the wings of which can be seen in the foreground. Note the machines on the ground in readiness for "flipping."

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ALTHOUGH there has been civilian flying at Hendon for the last two or three weeks, this has been mostly confined to passenger carrying, and the real opening of the season—and of peace flying—took place last week-end, when an exceptionally fitting opportunity occurred with the return of Mr. Hawker and Commander Mackenzie Grieve during last week, and with the arrival on Saturday of the Commander and crew of N.C. 4 after having crossed the Atlantic by air. The announcement had already been made in the daily press that Mr. Hawker would be flying at Hendon during the week-end, and naturally this fact proved a great attraction. Large crowds of visitors thronged all the enclosures, and it was gratifying to find that the tram and 'bus services were greatly improved, so that there was not the difficulty experienced on previous occasions in getting to and from the

passengers were being taken for a flip in one of the Blackburn "Kangaroos" purchased by the Grahame-White Co. for passenger work. The machine was just taking off, when, as far as could be seen, the pilot attempted to do a climbing turn with the machine hardly yet up to proper flying speed, and at an unusually low height. The result was that the machine stalled and hit the ground with the left wing tip, doing a cartwheel which crashed the long fuselage projecting in front. By a stroke of great good luck none of the passengers were seriously injured, as far as one could gather, and flying could therefore be proceeded with, but the crash calls, we think, for outspoken comment. We have no desire to be in any way unjust to the pilot, but so far as we are able to judge there are only two alternatives which explain the accident. Either a control wire broke, which is unlikely



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Auctioning flights with Mr. Hawker.—Mr. Grahame-White soliciting bids for passenger flights with Mr. Hawker at Hendon on Saturday last. The first flight was knocked down to Miss Daisy King for 60 guineas.

aerodrome. In addition to the ordinary means of transport, the Grahame-White Co. had conceived the excellent idea of running a service of lorries between Golders Green station and the aerodrome, the conductor selling tickets to the various enclosures, and thus forming, in fact, a sort of mobile ticket agency. By this means a great number of visitors reached the aerodrome with a minimum of discomfort and delay.

On Saturday an aerial reception had been prepared for pilots and machines arriving from different parts of the country to join in the general celebration of the rescue of Hawker and Grieve. Early in the afternoon, before the Sopwith machines arrived, passenger-carrying was in full swing with the G. W. Avros and "Kangaroos." Quite a number of passengers had enjoyed "flips" in both types of machines, when an accident occurred, which looked for a time very like checking flying for the rest of the day. Several

in a machine just overhauled and subject to Government inspection, or the pilot exhibited very poor judgment, attempting to make a climbing turn at much too low a height and before getting sufficient speed. These climbing turns straight off the ground look very spectacular, and may be forgiven when a pilot is in a single-seater and has only himself to think of, and when he has such a surplus of engine power as to be able to complete the turn even with a failing engine. When, however, he is carrying passengers this mode of taking off is distinctly hazardous, and in the interest of flying generally we think a pilot who deliberately attempts such an ill-judged manoeuvre should be suspended the instant he lands, and the suspension of his R.A.C. certificate for some period, in keeping with the circumstances of the case, should ensue. We have noticed this tendency before in the younger pilots, some of whom are too fond of these climbing turns, even when on low-powered machines, and in the case of pas-



Miss Daisy King, the highest bidder for the first passenger flight with Mr. Hawker at Hendon, being
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shepherded by Mr. Hawker and Mr. Sigrist into the Sopwith Gnu.



A 60-GUINEA "FLIP."—Mr. Hawker gives Miss Daisy King the first flight at Hendon on Saturday. Secured
"Flight" Copyright.
by our photographer from an Airco (de H. 9) biplane piloted by Capt. Gathergood.



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THE AERIAL WELCOME.—Mr. Clifford Prodger, on a B.A.T. Bantam, flew over Paddington on Sunday when the commander and crew of N.C. 4 arrived from Plymouth. Note the American flag on the fuselage.

senger-carriers such a start is not only quite unnecessary but is absolutely wrong. A few crashes from this cause, some with fatal results, would set back the popularity of flying and the aviation movement at a time when the sole aim should be to demonstrate the safety of flying. By a stroke of good luck the particular accident referred to looks like having no fatal consequences, but one does not want a repetition which *might* result in fatal injuries.

As soon as it was ascertained that none of the occupants of the "Kangaroo" was seriously injured, the various Avros commenced their passenger-carrying, while two B.A.T. Bantams gave a very pretty exhibition of quick manoeuvring and stunting. One of these was piloted by Mr. Clifford Prodger, whose marvellous "hands" appear as well attuned to the manipulation of a feather-weight like the Bantam as they are to the giant four-engined Handley-Page. That a man should have such a mastery of two types of machines so dissimilar is nothing short of marvellous, but the fact remains that Prodger seems as well at home in one as in the other. Soon the two Bantams were seen to make a line for the Welsh Harp, and it was not long before they returned in company with three Sopwith machines, two biplanes of the Gnu type, one of which was piloted by Mr. Hawker, who was accompanied by his wife, and one Sopwith parasol monoplane. The latter is, we understand, a stunt machine specially built for Mr. Hawker, and later in the day he gave an exhibition of what he could do on it. By the time the machines had approached the aerodrome they had been joined by others and it was quite a little squadron which, after a few circles around Hendon, came to rest on the aerodrome. Mr. and Mrs. Hawker and Mr. Sigrist, of the Sopwith Co., were received with cheers, and were escorted to Mr. Grahame-White's car in which they were driven slowly along the enclosures, so as to afford the visitors an opportunity of cheering Hawker. This they did with great gusto, and from one of the enclosures a lusty voice was heard to shout "What ho, 'Arry!"

After this introduction Mr. Grahame-White proceeded to sell by auction, passenger flights with Mr. Hawker in the Sopwith Gnu, B.R. 2 engine. Guided by Mr. Grahame-White's irresistible banter the bids rose rapidly, among the bidders being Mr. Beatty, who expressed himself willing



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THE AMERICAN FLYERS' VISIT TO HENDON.—Left to right (seated): Flight Commander Towers of N.C. 3, Mr. Hawker, Admiral Plunkett, Mrs. Grahame-White, Commander Read (N.C. 4), Mrs. Hawker, Commander Bellinger (N.C. 1). Standing are some of the crews of the N.C. Machines, Mr. Grahame-White, etc.

to spend £50 on a flight with his great little fellow-pilot Hawker. However, Beatty's £50 went begging, the flight being knocked down to Miss Daisy King, of Leeds, for 60 guineas. Miss King was taken up shortly afterwards by Mr. Hawker, and during this flight our photographer, mounted in an Airco (de H. 9) biplane, piloted by Capt. Gathergood, and kindly placed at our disposal by the Aircraft Manufacturing Co., obtained some excellent pictures of the Gnu with Miss King on board. A number of other passengers were taken up by Hawker later in the afternoon, and towards evening he gave an exhibition on the Sopwith monoplane. His rolls particularly were very neat, the machine finishing the roll horizontal and right way up with the greatest precision.

In addition to the passenger flying by G.W. Avros and "Kangaroos," there were some extremely pretty exhibitions given by the two B.A.T. Bantams, while a Vickers Vimy-Commerical machine, a large twin-engined passenger carrier with two Rolls-Royce engines, which came to rest just in front of the enclosures, was eagerly viewed by many of the visitors. This machine, which has a *monocoque* body, is of extremely generous proportions as regards its passenger accommodation, the cabin being luxuriously equipped with upholstered seats, etc. Through portholes in the side of the *fuselage* the passengers obtain a very good view without the discomfort of sitting in a strong draught. The accompanying photographs will give a good idea of the general lay-out of the machine.

Apart from the flying by Mr. Hawker, perhaps the greatest attraction of the afternoon was Lieut. Courtney's handling of the Boulton and Paul "Bourges," two A.B.C. "Dragon-fly" engines. This machine had come up from Norwich during the morning with, among others, Lieut. Paul and Mr. J. D. North, the designer, on board. As the "Bourges" was not generally known either to the general public or to many of the visitors directly interested in flying, her appearance was naturally looked forward to with interest. In the hands of Lieut. Courtney the "Bourges" appeared capable of all the manœuvres which are the birthright of the little machine, looping, spinning, Immelmann turns, etc., following one another in quick succession until at times it was difficult to realise that this was a comparatively heavy twin-engine bomber, and not a single-seater scout. If the B.P. Transatlantic machine behaves equally well—and as she is really a modification of the "Bourges," there does not appear to be any reason to expect otherwise—Messrs. Boulton and Paul should have a peace-time passenger machine of exceptional merits. A photograph of the "Bourges" in her original form, with two B.R.2 engines, was published in *FLIGHT* some time ago, and this week we are publishing another illustration of her as she stands to-day. Considering that this is not a new machine—she has, we believe, flown some 3,500 miles—her performance is extremely good.

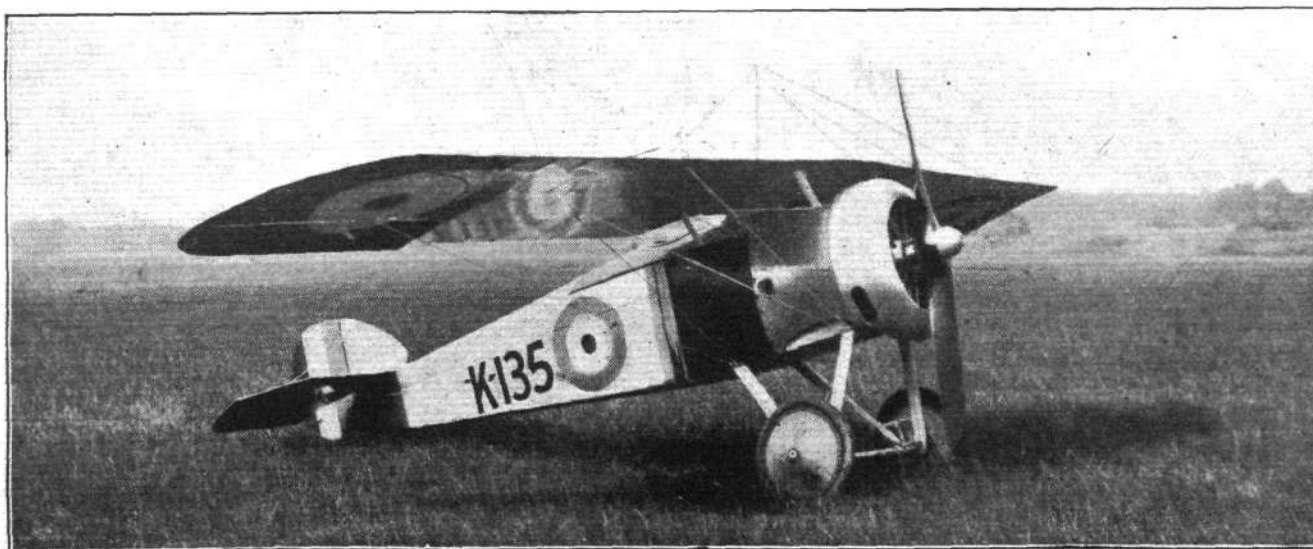
On Sunday some disappointment was caused to visitors early in the afternoon by the announcement in the daily Press that the commander and crew of the N.C.4 would probably not get out to Hendon during the day. The Avros and "Kangaroos" were busy again on Sunday, while the two B.A.T. Bantams gave some splendid exhibitions, piloted variously by Maj. Draper, Capt. Vaughan, and Lieuts. Turner and Duke.



H. B. Read
H. Hawker

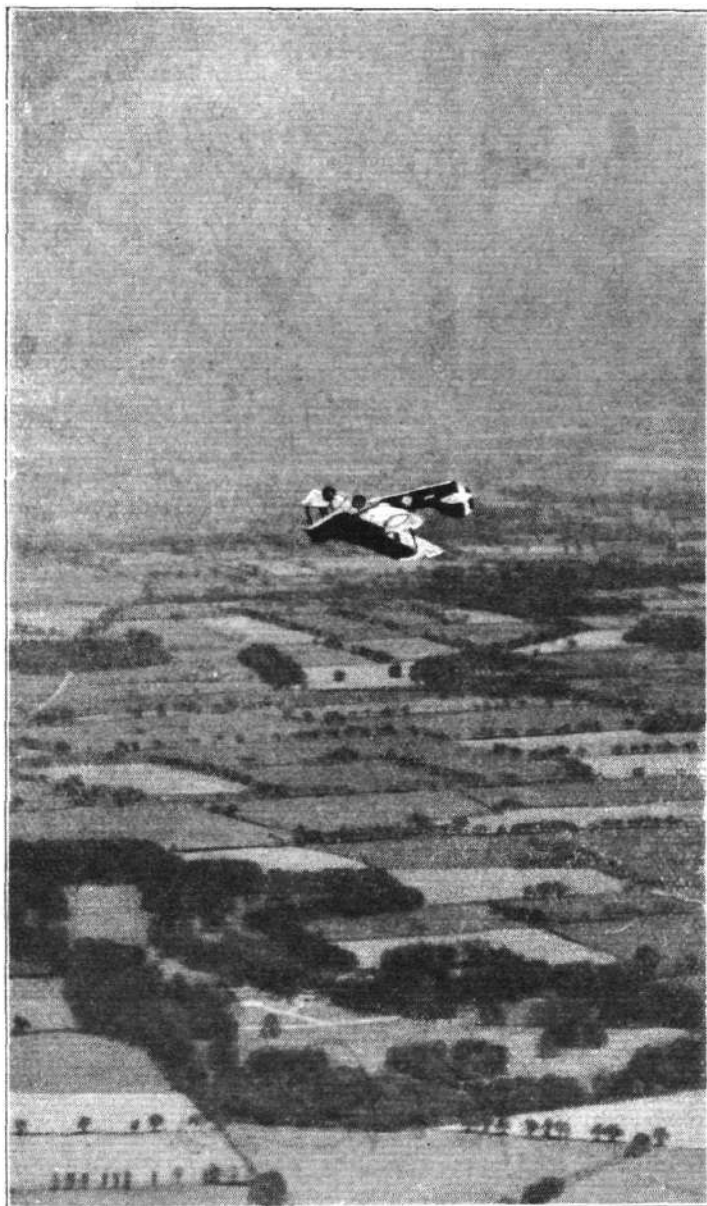
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"HANDS ACROSS THE SEA."—Mr. Hawker, at Hendon, congratulating Commander Read on his Atlantic flight in the N.C. 4.



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The Sopwith monoplane on which Mr. Hawker gave some splendid demonstrations of his skill as a pilot.

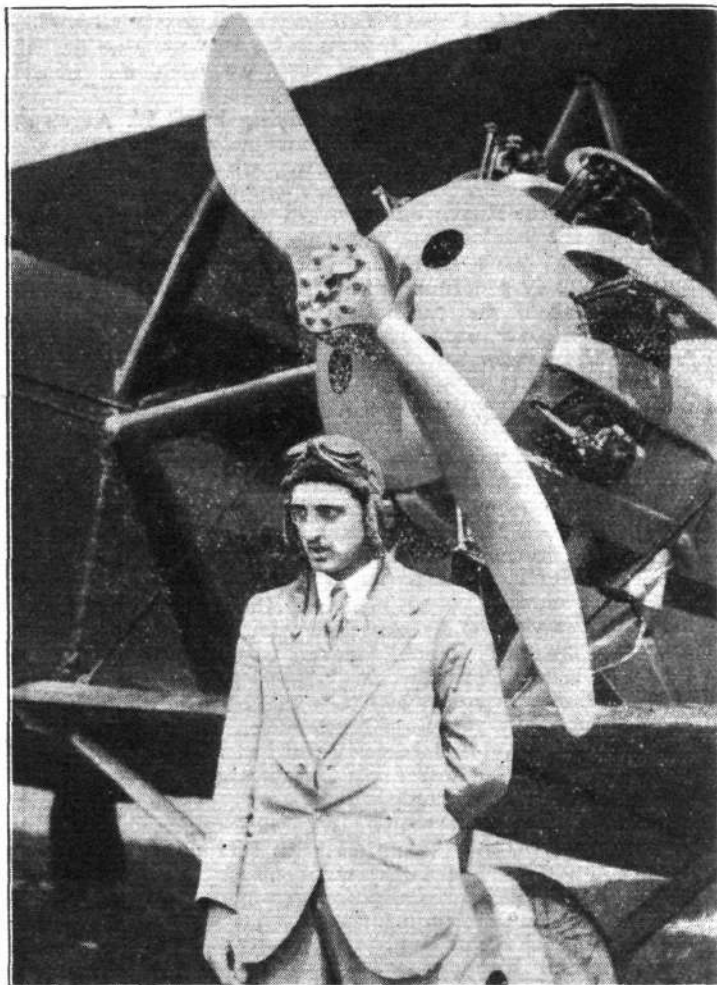


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THE BOULTON AND PAUL "BOURGES" LOOPING.—A photograph secured by our photographer, showing the machine as she frequently appeared at Hendon during last week end

One of them was again flown by Mr. Prodger, who had had it decorated with an American flag. After doing a few stunts over the aerodrome, he disappeared in the direction of London,

where he circled over Paddington, by way of a salute to his compatriots, who were then arriving there from Plymouth. In the meantime the other B.A.T. Bantam, piloted by Lieut. Draper, did some clever stunt flying, including a very long upside-down flight. The Sopwith Gnu were also much in evidence, and carried a number of passengers. About tea-time it was announced that the Americans were leaving the Royal Aero Club for Hendon, an announcement which



"Flight" Copyright

Lieut. Courtney, whose handling of the Boulton and Paul "Bourges" was admired alike by the public and by other pilots at Hendon during the week end.

was greeted with applause by all the visitors. Shortly afterwards Mr. Hawker went up in the Sopwith monoplane, followed by Capt. Gathergood in a de H. 9 (Airco) machine. These two pilots then gave a splendid demonstration of trick



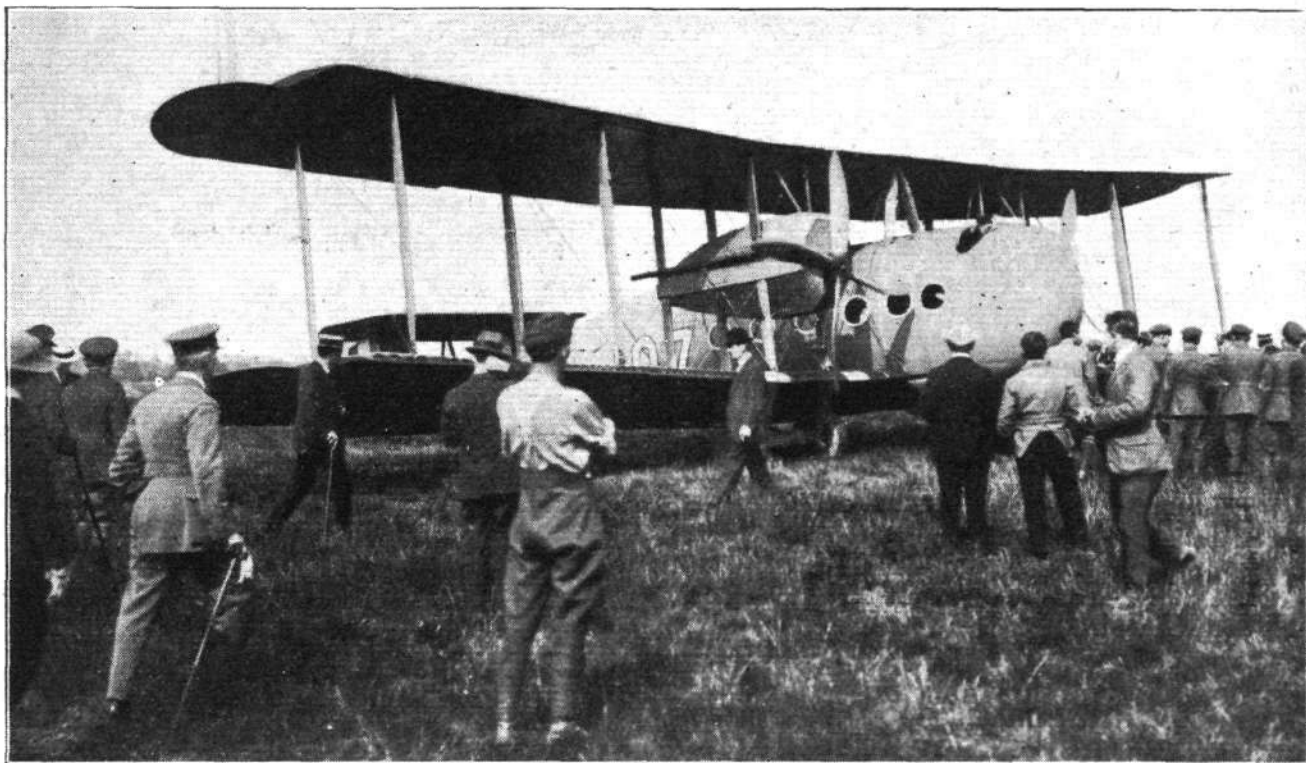
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THE BOULTON AND PAUL "BOURGES."—This machine, which is fitted with two A.B.C. "Dragonfly" engines, and the way it was handled by its pilot, Lieut. Courtney, was greatly admired at Hendon.

flying, sham fights, etc. It was very pretty to see the two machines circling "for position," and although the monoplane was obviously the handier of the two, Capt. Gathergood showed such mastery of his machine that his curves were not very much greater than those of the mono., in spite of the fact that the de H. 9 has a large water-cooled engine well

we think it was—caused great merriment by imploring pressmen to state in their respective papers that the liquid part of the refreshment was lemonade. "Remember," he said, "that we come from a 'dry' country."

By this time Lieut. Courtney had put a new pair of propellers on the "Bourges," and commenced to give one of



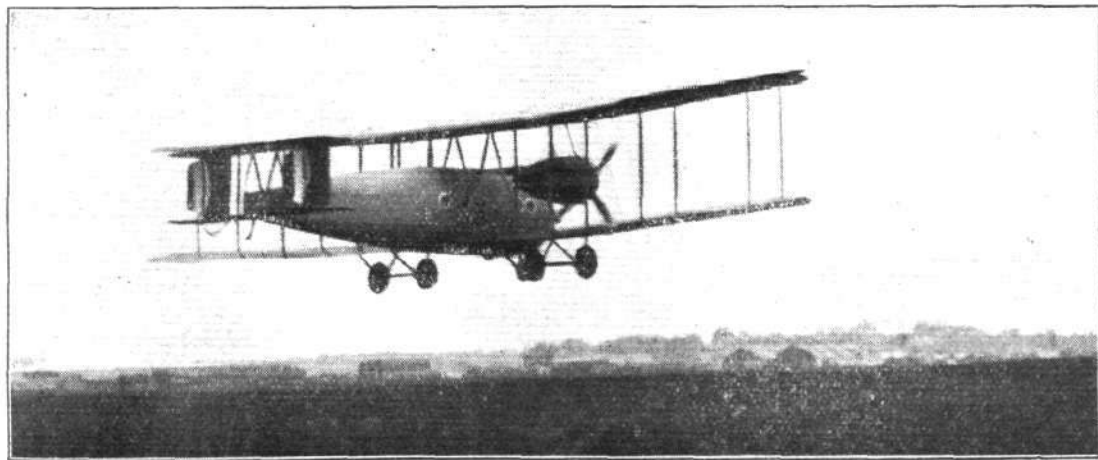
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A VISITOR TO HENDON.—The Vickers Vimy-Commercial machine fitted with two Rolls-Royce engines. This machine has a most luxuriously equipped cabin for passengers, enclosed in a *monocoque* body. In front, in bowler hat, immediately below the port engine nacelle, may be seen Mr. Louis Noel, who was one of the visitors to Hendon during the week end.

out in front and the passengers placed well back in the *fuselage*—in other words, has a large moment of inertia. Loops, spins, and rolls were also indulged in, and again Mr. Hawker showed his precision of touch by the masterly way in which his machine came into the horizontal position after a roll, neither stopping a fraction short of the horizontal nor passing it by a degree.

During this splendid exhibition Commander Read and the whole crew of the N.C. 4, with Commander Towers of the N.C. 3, arrived by motor car, and evidently thoroughly

his splendid demonstrations, the machine climbing at a very steep angle. The American visitors were evidently much impressed by the way in which this great twin-engine machine looped, spun, rolled, etc., and one of the crew was heard to exclaim, "Gee, it was worth coming three thousand miles to see." After enjoying the flying of the "Bourges" for some time, Commander Read, Commander Towers of the N.C. 3, and the rest of the American party were driven back to town by motor, but flying continued for a considerable time after their departure.

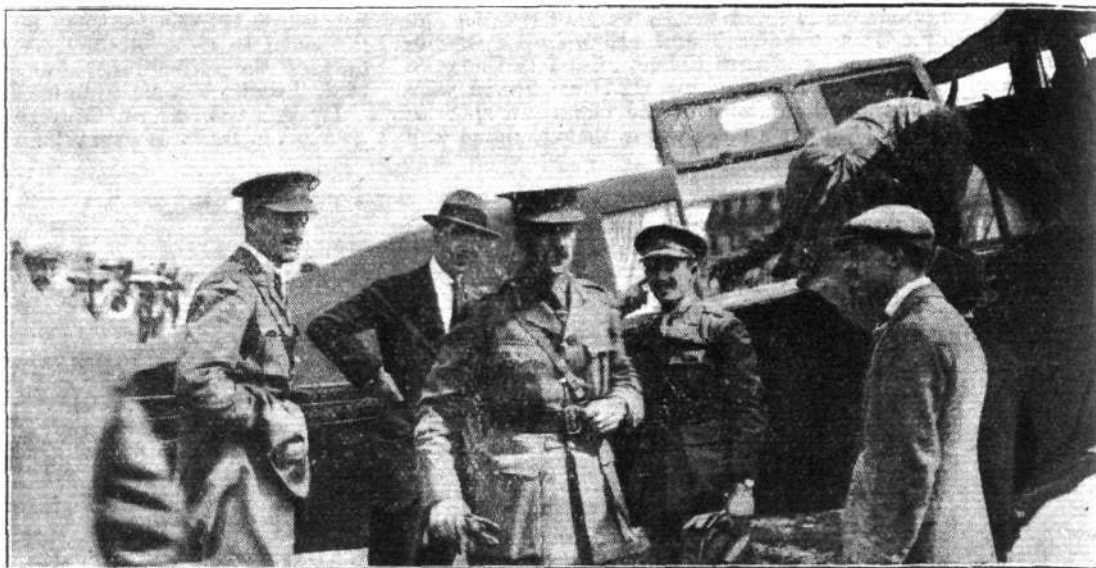


A snap of the Vickers Vimy-Commercial machine in flight

appreciated the flying. Loud cheers greeted them as the car entered the aerodrome, and these were repeated when, a little later, Mr. Grahame-White's car paraded the Americans up and down in front of the enclosures. In the meantime Mr. Hawker and Capt. Gathergood had landed and met the Americans in the enclosure, where light refreshments were served. A member of the American party—Admiral Plunkett,

There can be no doubt that last week-end was thoroughly enjoyed by all the visitors to Hendon, and the flying was, needless to say, far ahead of anything seen there before the War. A great number of old-time familiar faces were observed. Among others we noticed that old-time flying enthusiast, Mr. Withers in his Rolls-Royce, and Lieut. (now Mr.) Louis Noel, who has been demobilised; and who returned

The New Mode of Travel.—Three Generals flew over to Hendon on Saturday from Stonehenge in a converted de H. 4, piloted by Mr. M. D. Manton of the Aircraft Manufacturing Co.



flying greatly improved during the War, but with one's enjoyment of it clouded every now and then by the thought of those whom we shall never see at Hendon again.

C.M.G.

C.B.

K.C.M.G.

Col. (A. Brig.-Gen.) J. M. Steel, C.B.E.; Col. (A. Brig.-Gen.) E. A. D. Masterman, C.B.E., A.F.C.; Col. (A. Brig.-Gen.) H. P. Smyth-Osbourne (France); Col. F. C. Halahan, D.S.O., M.V.O.; Col. (A. Brig.-Gen.) P. R. C. Groves, D.S.O. (Shrop. L.I.); Lieut.-Col. (A. Col.) R. C. S. Hunt; Lieut.-Col. (A. Col.) C. R. Samson, D.S.O., A.F.C.; Lieut.-Col. (A. Brig.-Gen.) E. R. Ludlow-Hewitt, D.S.O., M.C. (R. Ir. Rifles) (France); Lieut.-Col. (A. Col.) U. J. D. Bourke (Oxf. and Bucks L.I.); Lieut.-Col. (A. Brig.-Gen.) A. E. Borton, D.S.O., A.F.C. (R. Highs.) (Egypt); Lieut.-Col. (A. Brig.-Gen.) A. F. E. Fether, C.B.E., M.C., (R.E.); Lieut.-Col. A. D. Warrington-Morris, O.B.E.; Lieut.-Col. (A. Brig.-Gen.) J. A. Houston-Craufurd, C.B.E. (Ind. Army); Maj. (A. Lieut.-Col.) J. A. Chamier, D.S.O., O.B.E. (Ind. Army) (France); Lieut.-Col. A. S. Barratt, M.C. (R.A.) (France); Lieut.-Col. C. Fraser, O.B.E., M.C. (N. Staff. R.) (Egypt); Maj. (A. Lieut.-Col.) R. A. Bradley (N. Staff. R.) (Mesopotamia).

C.P.O., 3rd Class, P. H. Brooks, R.N.A.S., O.N. F.12795.
Air-Mech., 1st Class, F. Hainsworth, R.N.A.S., O.N.
W.12824.

Orsett (Essex).	Horsegate (Durham).
Greenland Top (Yorks).	Menthorpe Gate (Yorks).
Benton (Northumberland).	Palmers Farm (Essex).
Broomfield (Herne Bay).	Pluckley (Kent).
Dunkeswicke (Yorks).	Thornaby (Yorks).
Gilmerton (Edinburgh).	Westpole Farm (Herts).
Grove Park (Kent).	Winterton (Yorks).
Hedon (Yorks).	

On May 24 one of the German mail aeroplanes flew from Berlin to Constance with two passengers in four hours five minutes.

THE ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS

COMMITTEE MEETING

A SPECIAL MEETING of the Committee was held on Monday, June 2, 1919, when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., in the Chair, Mr. Ernest C. Bucknall, Lieut.-Col. John D. Dunville, R.A.F., Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col. Alec Ogilvie and Mr. H. E. Perrin, Secretary.

New Members.—The following New Members were elected:—Capt. C. K. Chase, R.A.F.; Lieut.-Col. H. B. T. Childs, R.A.F.; Capt. J. T. Chitty, R.A.F.; Capt. J. D. Coales, R.A.F.; Capt. F. P. Dickson, R.A.S.C. (M.T.); Maj. A. E. Gendle, R.A.F.; Capt. V. Greenwood, R.A.F.; Capt. E. Gribben; Capt. C. E. Hilton-James, R.A.F.; H. O. Lewis; Lieut. R. C. Michaelson, R.A.F.; Maj. J. H. Tyler, R.A.F.; Lieut. P. B. White (East Surrey Regt.); Capt. H. R. de Wilde, R.A.F.

Fédération Aéronautique Internationale

The report of the Conference of the Fédération Aéronautique Internationale held in Paris on May 19, 20 and 21, 1919, was received from the delegates, Lieut.-Col. Mervyn O'Gorman, C.B., Lieut.-Col. Alec Ogilvie and Lieut.-Col. F. K. McClean. Full details of this report will be issued later.

A unanimous vote of thanks was passed to the delegates who attended the Conference on behalf of the Royal Aero Club.

N.C. 4

The Crew of the N.C. 4, accompanied by representatives of the U.S. Naval Forces operating in European Waters,

visited the Royal Aero Club on Sunday last, immediately on their arrival in London, and met with an enthusiastic welcome.

In response to a congratulatory message from the Chairman of the Royal Aero Club, the following cablegram was received from Rear-Admiral H. S. Knapp, U.S.N.:—

"The Duke of Atholl, Chairman, Royal Aero Club. I thank you sincerely for your own congratulations and those of the Members of the Royal Aero Club on the successful crossing of the Atlantic by the United States Seaplane N.C. 4. I shall take pleasure in bringing to the attention of the Commander of the N.C. 4 your courteous message.—KNAPP."

THE FLYING SERVICES FUND

A MEETING of the Flying Services Fund Committee was held on Wednesday, May 28, 1919, when there were present:—H.R.H. Prince Albert, K.G., in the Chair, Mr. Chester Fox, Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Brig.-Gen. R. H. More, C.M.G., and Mr. Harold E. Perrin, Secretary.

Chairman.—On the motion of Brig.-Gen. R. H. More, C.M.G., seconded by Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., H.R.H. Prince Albert, K.G., was elected Chairman.

Grants and Allowances.—Sixteen grants and allowances were made, of which details will be published next week.

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

THE HAWKER-GRIEVE WELCOMES

THE ROYAL AERO CLUB "FAMILY" GATHERING

ON May 30 Mr. H. G. Hawker and Lieut.-Commander Mackenzie-Grieve were the guests of the Royal Aero Club at luncheon. Gen. Sir Capel Holden presided over a large gathering of members. In proposing the toast of "The Guests," he said that they congratulated Hawker and Grieve, and they admired their extraordinary courage and optimism.

Mr. T. Marlowe and Lieut.-Col. F. K. McClean also supported the toast, and Mr. Hawker and Commander Mac-

kenzie-Grieve, who were received with musical honours, briefly returned thanks. Mr. Sopwith, who also responded, expressed admiration for the persistence with which Lord Northcliffe had backed aviation from the beginning. The magnificent sums of money which, he said, he had offered for competition had always been with the view to a definite advance in aeronautical construction. When Lord Northcliffe's cheque for £5,000 was presented, it was assumed



THE ROYAL AERO CLUB "FAMILY" GREETING AT THE SAVOY.—Seated (left to right): Mrs. Fenn, Mrs. Reginald Carey, Miss May Sopwith, Mrs. Hawker, Mrs. T. O. M. Sopwith, Mrs. F. K. McClean and Mrs. Moore. In the group standing are Mr. Hawker, Commander Mackenzie-Grieve, Gen. Sir Capel Holden (Chairman of the Club), Mr. Sopwith, Mr. Fairlie, Mr. May, Commander McClean, etc., etc.

that it would be divided between Mr. Hawker and Commander Grieve in the proportions that they had decided to divide the £10,000, if they succeeded in winning it. When Mr. Hawker received the £5,000, he said, "We have not won the prize. We have both gone through equal risk together. We will halve it." The original plan was to share the £10,000 in proportions of 70 per cent. and 30 per cent. Mr. Hawker had assured him that Commander Grieve was the most wonderful navigator he had ever met, and if he took up the job again he would not dream of going with anybody else.

With regard to the American Transatlantic flight, an erroneous impression had got abroad that we did not think very much of it. He could assure them that that was not so. He extended to Commander Read their heartiest congratulations, and he also expressed his admiration of the wonderful organisation arranged by the American navy. There was an idea that the Government ought to have supplied patrol ships. But the North Atlantic route was different from that

to the Azores. The weather was different, and absolutely unreliable at this time of the year. If ships had been sent out they would have been waiting for two months, and the Government could not expect the country to supply the necessary money to keep a large proportion of the British Fleet at sea for that purpose. They had received the greatest courtesy and assistance from all the Government Departments with which they had come in contact. The Air Ministry had assisted them, and the help of the Marconi Co. had been invaluable. He was certain that before this summer was out a British crew in a machine of British design and construction, and backed by British enterprise, would be the first to make the non-stop direct flight. When he met Hawker and Grieve, almost their first words were, "Let us have another go at it." So far as his company was concerned, they would not make another attempt, but they extended good wishes to the other competitors.

The toast list concluded with "The Chairman," proposed by Maj.-Gen. Sir S. Brancker.

THE DAILY MAIL "CONSOLATION PRIZE" PRESENTATION

MR. HAWKER and Commander Grieve were entertained at luncheon on May 28 by the directors of the *Daily Mail*, and were presented by Maj.-Gen. Seely, Under-Secretary to the Air Ministry, with the cheque for £5,000 awarded to them by the directors of the *Daily Mail* as a consolation prize. Mrs. Hawker accompanied her husband, and was the only lady present. Lord Northcliffe was unable to preside owing to an impending operation on his throat, and the chair was taken by Mr. Thomas Marlowe, Chairman of the Associated Newspapers, Ltd., and editor of the *Daily Mail*.

Among those who accepted invitations were the following: The Lord Chancellor (Lord Birkenhead), Lord Inverclyde, Lord Morris, Lord Londonderry, Maj.-Gen. J. E. B. Seely, Maj.-Gen. Sir F. Sykes, Admiral-of-the-Fleet Sir Edward Seymour, Mr. Cecil Harmsworth (Under-Secretary for Foreign Affairs), Sir W. A. Robinson, Sir Edgar Bowring, Mr. Andrew Fisher, Sir Joseph Cook, Mr. John Walter, Sheriff Banister Fletcher, Sir Arthur Stanley, Sir George Sutton, Sir Campbell Stuart, Sir Marcus Samuel, Sir William Sutherland, Sir Howard Frank, Brig.-Gen. Sir Capel Holden, Sir Trevor Dawson, Sir Henry Dalziel, Sir Vincent Caillard, Sir S. J. Waring, Sir Charles Wakefield, Maj.-Gen. Sir W. S. Brancker, Gen. G. M. Ruck, Brig.-Gen. W. F. Mildren, Brig.-Gen. Livingstone, Commander H. E. Perrin, R.N.V.R., Col. Clarke, Col. F. K. Maclean, Lieut.-Col. Ivor Fraser, Maj. Evelyn Wrench, Maj. Timewell, Mr. Hildebrand Harmsworth, Mr. Vyvyan Harmsworth.

Mr. Reginald Nicholson, Mr. T. O. M. Sopwith, Mr. Handley Page, Mr. Claude Johnson, Col. Hubbard, Mr. Godfrey Isaacs, Mr. W. Lints Smith, Mr. G. B. Cockburn, Mr. A. V. Roe, Mr. A. H. Fenn, Mr. Holt Thomas, Mr. J. Cowley, Mr. C. R. Fairie, Mr. B. Stevenson, Mr. Cary, Mr. W. A. Bland, Mr. Grahame-White, Maj. Buck, Maj. Bullock, Capt. C. Gamage, Mr. Eric Gamage, Mr. Stuart Hirst, Mr. Robert Burns, Maj. Heckstall Smith, Mr. Harry Smith, Mr. Guy Petter, Mr. H. Imber, Mr. A. Levy, Mr. P. Richardson, Mr. Sidney Pickles, Mr. George White, Mr. F. E. Bussy, and Mr. Chester.

The Chairman read messages regretting inability to attend from the Duke of Connaught, the Duke of Atholl, the Lord Mayor, Mr. Hughes (Prime Minister of Australia), Sir Rosslyn Wemyss (First Sea Lord), and Lord Weir. Lord Northcliffe sent the following message:—

"I regret that my physicians forbid my taking part in any public functions just now. Had I been present to-day I should have liked to elaborate a few outstanding facts connected with this occasion.

"The War has shown us that the courage of the sister nations of Australasia, Canada, South Africa, and New-

foundland is every whit equal to that of the small Motherland from which they sprang. The partnership of Hawker, the Australian flyer, and Grieve, of the British Navy, has proved what can be achieved by unity of members of our British Commonwealth. Their flight is as great a step



Mr. Hawker and Commander Mackenzie-Grieve at the Savoy Hotel receive the *Daily Mail* £5,000 Consolation Prize. The front of the menu card autographed by Mr. and Mrs. Hawker, Commander Mackenzie-Grieve, Mr. T. O. M. Sopwith (the machine), Mr. Claude Johnson (the Rolls-Royce engine), Commander H. E. Perrin, Secretary, Royal Aero Club, and Mr. Thomas Marlowe, of the *Daily Mail* who presided in the absence, through illness, of Lord Northcliffe.

forward in the march of science as was the first important but unsuccessful attempt to lay the Atlantic cable, and it will so rank in history. The lessons they have learned will help forward the time when a direct Atlantic flight will be almost as easy as, and even more useful than, that across the British Channel. As remarkable as the exploits of our two heroes is the immutable confidence in Divine Providence of Muriel Hawker, who not for one instant faltered in her absolute belief that her husband would be restored to her.

"Were I present I should like to raise a glass in congratulation of our American friends on their careful and characteristic preparations for their fine record-breaking flight to the Azores and Lisbon. They still have left to us the problem of a direct flight from America to Europe. Personally, I have no doubt but that, with the lessons and experience gained by Hawker and Grieve, a direct flight will soon be accomplished, and that by a British plane with a British motor, manned by Britons."

The Chairman, in proposing the toast of "Mr. Hawker and Commander Grieve," said that had Mr. Hawker's only object been to gain the £10,000 prize he would have waited for better weather, but he felt that for the honour of the British Empire he was no longer free to choose his own time. The spirit which he had shown was the British spirit, and they knew very well that it was the spirit of Australia. They offered their most sincere congratulations to the United States Navy upon its great flight to Lisbon. But they could not refrain from congratulating Mr. Hawker and Commander Grieve that in one way or another they had got across the Atlantic first. He was not going to adopt the cool view in which their efforts would be described as a failure. In the present stage of the art of flying there was no such word as failure. Every effort led directly to accomplishment. Mr. Hawker's flight had taught him and every other airman a great deal which nobody knew until he arrived at Thurso, and what he learned would enable one of them to fly the Atlantic at no very distant date.

Maj.-Gen. Seely, in presenting Mr. Hawker and Commander Grieve with the cheque for £5,000, the consolation prize offered by the *Daily Mail*, said he wished first of all to say on behalf, not only of the Air Ministry, but of His Majesty's Government as a whole, and of the whole of the people of Great Britain and the Empire, that they rejoiced to see them both safe and sound. It was a good thing that they had done: it had not been a useless thing. The lesson that Commander Grieve taught was that in an aeroplane 15,000 ft. up above the clouds, a man with a cool head and steady brain could take accurate observations from the stars with a cloud horizon. There had been no tinge of jealousy of our Anglo-Saxon brethren, the Americans; they were more anxious, he believed, even than the people of this country, and he could not put it higher, for their safety when the news had come through that it was probable those two men were missing.

Still less was there jealousy on the part of the Royal Air Force. The presence of Gen. Sykes testified to one side of their organisation. Gen. Trenchard, the Chief of the Air Staff, and formerly Commander of the Independent Air Force, to whom the country owed so much for the victory we had gained, had asked him to say on his own behalf and on behalf of the Royal Air Force that he hoped they would accept a message from him. It was a characteristic and simple message. "On behalf of the Royal Air Force I would like to add our congratulations and thanks to Mr. Hawker and Lieut.-Commander Grieve. I think I can safely say that no one is a better judge of what this flight of Mr. Hawker and Commander Grieve really meant than the pilots and observers of the Royal Air Force. They know the amount of determination that is required, and they also know the appalling strain of waiting, waiting until the weather gets right to do a long flight, and many a man with the necessary grit and determination has failed through that waiting. We all know that Mr. Hawker and Commander Grieve did not fail in this way, and this is the greatest compliment I can pay them." On behalf of every officer in the

Royal Air Force, he could say they were proud of their achievements, and they rejoiced that the King had been pleased to give to each of them the Air Force Cross for distinguished acts of gallantry in the air. He thought he disclosed no secret when he said that it was due to His Majesty's direct intervention that all difficulties as to time and all difficulties of red tape had been swept away in order that he as the head of the State and the head of the great British Empire might that day present them with this coveted distinction for acts of exceptional gallantry.

They were two good men who were being honoured that day. Mr. Hawker, by his technical knowledge, by his nerve and skill, and by his gallantry in testing new types during the War, had contributed in the first degree to producing the wonderful machines which had helped us to gain supremacy over the enemy. He might well be proud of that War record. Commander Grieve, of the Silent Service, served with his comrades in the Royal Navy, and always with distinction.

Mr. Hawker, who was received with cheers, said he wished to thank the *Daily Mail* for its exceptional kindness and for the gift of £5,000 for their feeble effort. Speaking of the delay due to the weather, he said that Raynham and he on the night before he started, had decided that if they could not get across to England on the next day, they would go by the Azores and Portugal, for the weather at that time was blowing an easterly gale, and they could not have reached England by direct flight owing to the consumption of petrol that would require. As it happened, on the next day the weather reports were better. It was most unfortunate for Raynham that he could not get off with an east wind, but it was fortunate for them.

There had been some talk of the manner in which the Admiralty and the War Office had backed their attempt. He did not think they could have wished for better assistance than they had had from the Air Ministry. They had had access to all their latest information, and everything possible had been done to assist them. There was nothing for which they could ask which the Air Ministry would not do before they left. They had been given every assistance, even to the wireless supply. Unfortunately that was not successful, but it was the latest thing they had. The failure was not due to the wireless itself, but to the failure of their fittings. If they were going to fly the Atlantic they had first to decide whether it was a serious effort—as the Americans called it, a "do or die effort." They had weighed it up, and theirs had been a serious attempt in every way. With the ordinary amount of luck they got in a machine, there was no reason why they should not cover the distance overland to-morrow. They would think nothing of the distance overland.

Commander Grieve, who was also loudly cheered, said he wished heartily to endorse every word Mr. Hawker had said. He confessed that at one time he had been frightened about the navigation. When he left St. John's the sun was shining, and there were clouds below. He had used the clouds as he would have used the sea, with certain technical differences. That had gone on for four hours, when the clouds got up higher than themselves, and sights were impossible at a time when they were most required. About sunset the stars came out, but he got no sights for four or five hours until the moon came out. He then managed to get sights again, and recovered their position. This showed that navigation in aircraft was quite possible and practical, and there was no difficulty about it in ordinary favourable circumstances, which one should get in the ordinary course of events. Of course wireless was a valuable adjunct, and the position of ships met with was important as a check. Unfortunately their wireless went wrong through lack of trial; they had only received the fittings just before they left, and had not tried them in the air. In every other way the navigation of the whole trip was a success so far as they got.

Mr. Andrew Fisher proposed the health of the Chairman, and, on the suggestion of Mr. W. G. Emery, a message was sent to Lord Northcliffe wishing him a speedy recovery.

Excess Profits Duty Decision

It was announced in the *London Gazette* of Tuesday last that the Board of Referees had to decide not to make any order on the application by the Society of British Aircraft Constructors for an increase of the statutory percentage of profits free from excess profits duty.

The "Jupiter" Aero Engine

In our issue of May 22 we published an illustration of this engine the inscription accompanying which was so worded as to indicate that the figures given, of weight/hp. etc., were obtained during tests at the R.A.E. It should be

pointed out that the tests were not carried out at the R.A.E. but at the works of the Cosmcs Co. in the presence of R.A.E. representatives.

In the circumstances, therefore, they do not constitute official calibration tests.

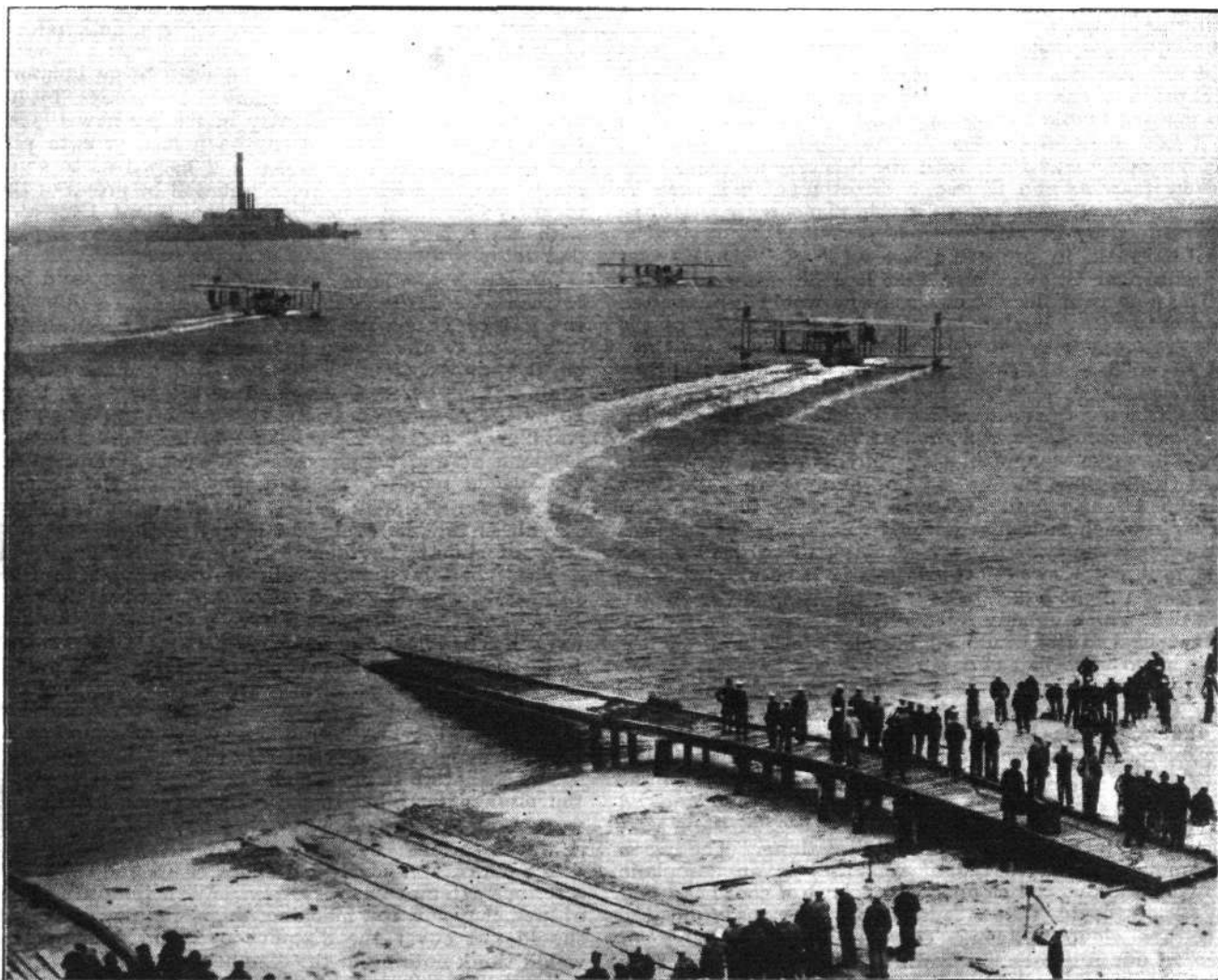
W.R.A.F. Gratuities

THE Air Ministry announces that it is proposed to embody a special provision in the Finance Bill exempting from taxation benefits payable to officers and other ranks of the Women's Royal Air Force. No assessments on these benefits will, therefore, be made.

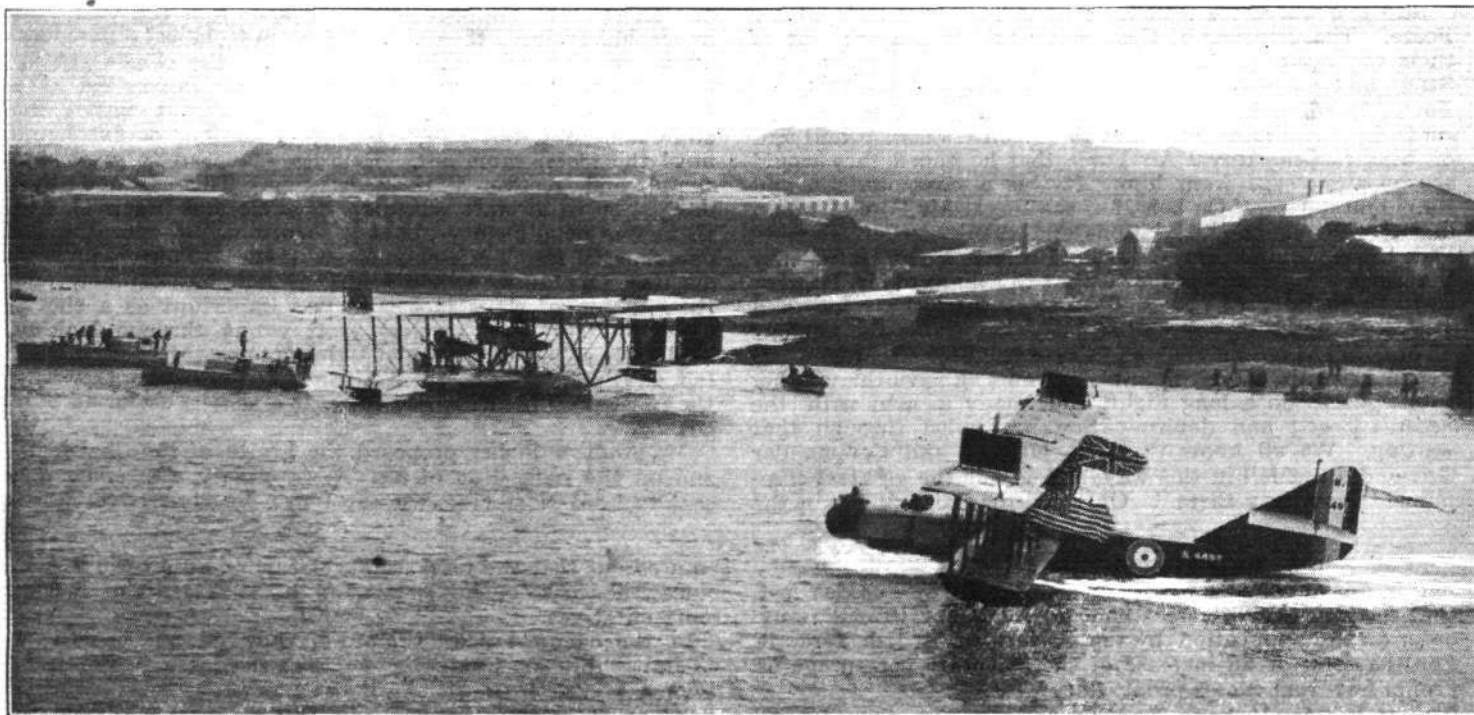
THE TRANSATLANTIC FLIGHT

In our last issue we were able to record briefly the arrival of the N.C. 4 at Lisbon, and on Saturday last she arrived at Plymouth and was given a real British welcome. She left Lisbon on May 30 at 5.29 a.m. Greenwich time, but had to come down at the Mondego River at 7 a.m. owing to trouble

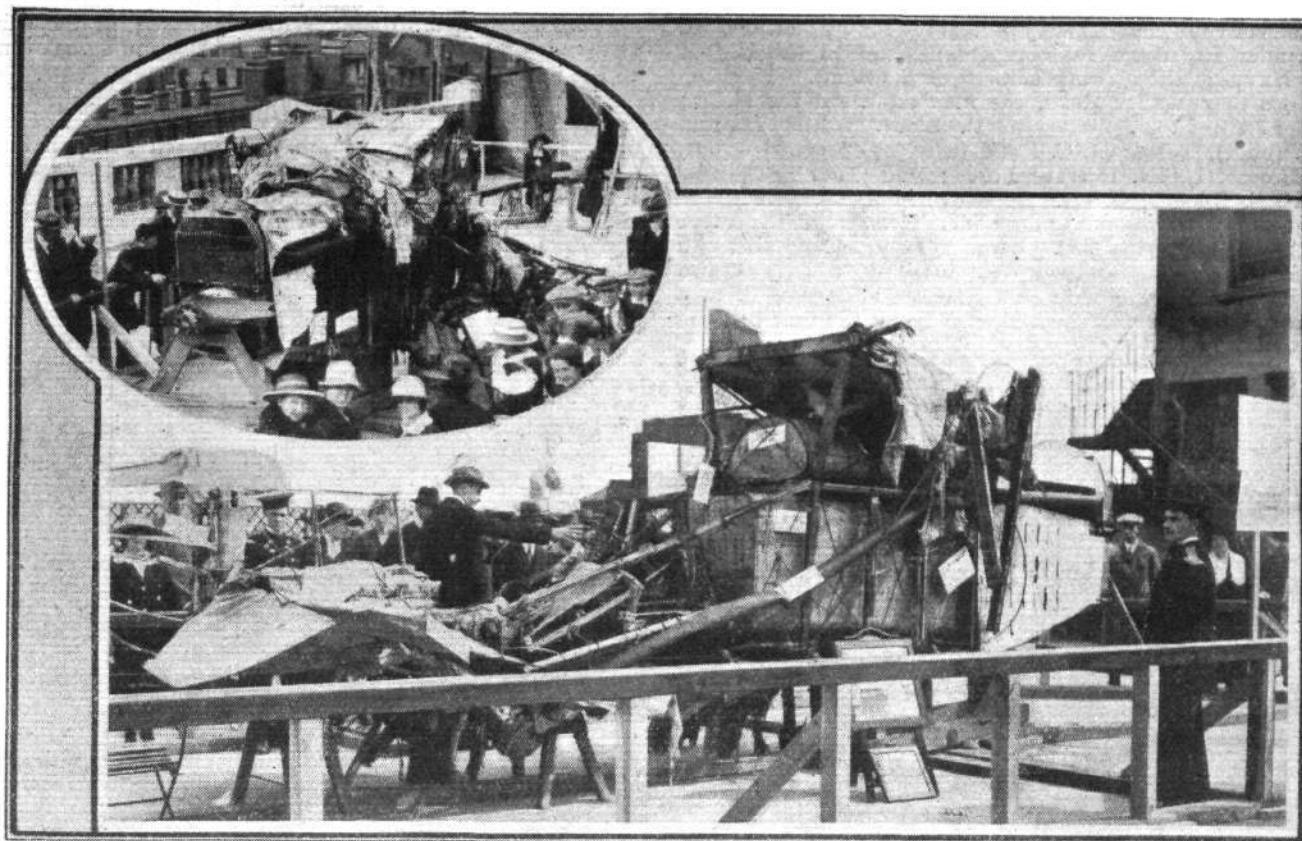
with one of the engines. At 1.38 p.m. a re-start was made, and Ferrol, 340 miles from Lisbon, was reached at 4.47 p.m.; it was then decided to stay for the night. At 6.27 the next morning, although the weather was thick and squally, Commander Read resolved to go on, and Ferrol was left at 6.27 a.m.



The N.C. 1, 3 and 4 leaving Rockaway Air Station on their first leg of the Atlantic flight *via* the Azores.



The U.S. Naval Seaplane N.C. 4 arrives at Plymouth, completing the crossing of the Atlantic by the air. The N.C. 4 is to the left in Plymouth Harbour, and taxiing is British Seaplane W 4499, flying the British and American flags, on its way to greet the voyagers.



"Flight" Copyright.

Hawker's salvaged Sopwith machine on the roof of Selfridge's, Oxford Street

Only two destroyers were sighted, and at 11 o'clock the machine was over Brest, and met a head wind across the Channel. Plymouth was sighted at twelve minutes past one, and the N.C. 4 missed the three F. 2A flying-boats which had been sent out by the R.A.F. to meet them. The N.C. 4 crossed the breakwater at an altitude of about 15,000 ft., circled round Drake's Island, made a spiral descent opposite the Citadel, and settled on the water at 1.26 p.m., being greeted by a storm of cheering and the sounding of every siren and whistle within range. As soon as the machine was moored the officers and crew of the N.C. 4 were taken off by an

American pinnacle to the U.S. flagship *Rochester*, where they met Rear-Admiral Plunkett of the U.S. Navy, and the officers and crews of the N.C. 1 and N.C. 3, and a number of British Naval and Air Force officers. They were welcomed to England by the Mayor and Corporation of Plymouth; later in the afternoon, when they went ashore, they were led in procession to the Grand Hotel, where Admiral Cecil Thursby welcomed the men of the N.C. 4 on behalf of the Navy, and Col. Shepherd on behalf of the Air Force.

The King, immediately he heard of the N.C. 4's arrival,



"Flight" Copyright.

How would you like to be in this little simmering mass? A snap inside King's Cross Station upon the arrival in London last week of Mr. Hawker and Commander Mackenzie-Grieve, as seen from the top of the railway coach in which the aviators travelled. Some of the happy throng look as if they had taken to floating, to obtain a breather

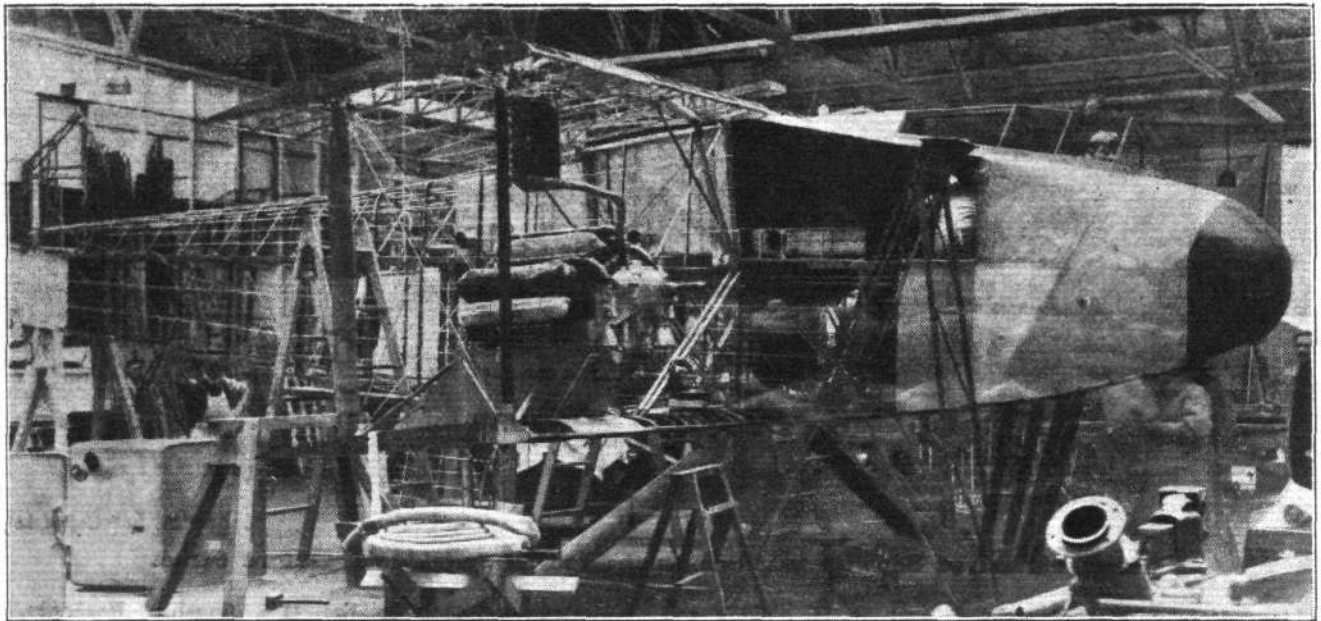
sent an Equerry to the United States Ambassador to ask him to convey His Majesty's hearty congratulations to Commander Read and his companions, and to the United States Navy on the accomplishment of the flight.

Besides Commander Read, the men on board the N.C. 4 were: Lieut. E. F. Stone (pilot), Lieut. Walter Hinton, U.S.N. (pilot), Ensign H. C. Rodd (wireless operator), Lieut. J. L. Breese, U.S.N. Reserve Force; and Chief Mechanics' Mate E. S. Rhoads, U.S.N.

On Sunday afternoon Commander Read and the other officers and men of the N.C. 4 came to London, and although very few people knew they were arriving, a large crowd quickly gathered at Paddington Station, and gave them a most rousing reception. Mr. Hawker being the first to greet

The Board of Trade, with the approval of the King, have also awarded pieces of plate to the master of the ship, to the person in charge of the rescuing boat, and sums of money to the rest of the boat's crew.

The Sopwith machine was found by the s.s. *Lake Charlotteville* on May 23 at 9 p.m. (Greenwich time) in latitude 49.40 N. and longitude 29.08 W., about 20 miles east and 40 miles south of the point at which Hawker and Grieve were picked up. It arrived at Falmouth on May 28, and was sent to London, and placed on exhibition on Selfridge's roof on Monday. The mails entrusted to Mr. Hawker were recovered and delivered in London on May 30. They were in excellent condition.



THE TRANSATLANTIC BOULTON AND PAUL-NAPIER MACHINE.—The fuselage being erected at the B.P. works at Norwich. The starboard Napier aero engine may be seen in place on the wing. Note the large tanks

Commander Read when he stepped from the train. The crowd insisted on chairing Commander Read and Mr. Hawker, and then they were taken from the station to the Royal Aero Club, afterwards proceeding to Hendon as explained elsewhere.

At Lisbon the aviators were decorated by the Portuguese Minister of Marine with the Grand Cross of the Order of the Tower and Sword.

TRANSATLANTIC ITEMS

The King, on the recommendation of the President of the Board of Trade, has awarded the Silver Medal for Gallantry in Saving Life at Sea to each member of the crew of the boat of the Danish steamship *Mary*, which rescued Mr. H. G. Hawker and Commander Kenneth M. Mackenzie-Grieve, R.N., in the North Atlantic on May 19.

To the letter which the Postmaster-General of Newfoundland sent in Mr. Hawker's mail bag in the Transatlantic flight, Mr. A. H. Illingworth, the Postmaster-General, replies as follows:—

"His Majesty's Postmaster-General thanks the Postmaster-General of Newfoundland for the greeting sent by first Transatlantic air post which has reached him safely, and, though it has been in the sea, is quite legible. H.M. Postmaster-General has had the pleasure of meeting Mr. Hawker and of congratulating him on his wonderful achievement."

Messrs. Boulton and Paul announce that the pilots of their Boulton-Paul 1 will be Maj. K. S. Savory, D.S.O., R.A.F., and Capt. J. H. Woolner. Capt. A. L. Howarth will be the observer and wireless expert.

PROGRESS IN WIRELESS TELEPHONY AND DIRECTION FINDING

"Shall we go for a motor 'bus ride in the country or hear that concert at the Suchandsuch Hall?"

"Why not let us do both?"

That such a feat is possible was proved last week during the interesting demonstrations of wireless telephony and direction finding by the Marconi Company. The remarkable achievement was only incidental to the main demonstrations—"just to keep us amused" whilst being conveyed on a "National" steam 'bus from Chelmsford to Colchester for the purpose of demonstrating direction finding by wireless, described later. The 'bus was fitted with a telephonic receiving apparatus, and throughout the journey the occupants listened to "speeches" and gramophone selections, transmitted from Broomfield (near Chelmsford), and, on reaching their destination, heard a conversation between the latter place and Marconi House, London.

Previous to this, in the morning, a tour of inspection of the Marconi works at Chelmsford was made, after which we were privileged to converse with Broomfield Station, some two miles away. If any fault could be found with our experiment at all, it was that the messages received were too loud. In operation, the wireless 'phone is quite simple, and is, in fact, similar to an ordinary one, with the difference that a switch

has to be moved to one position when speaking, and to another position when receiving.

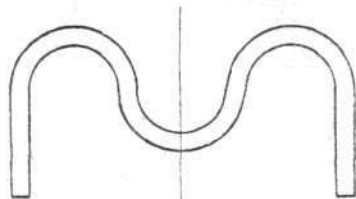
As regards the direction finding demonstration in the afternoon, this was by far the most interesting item of the proceedings, and was, perhaps, more closely associated with aviation. A motor lorry, equipped with a portable wireless transmitting and receiving telephonic set, proceeded to a point near Colchester selected by the Mayor of the latter town and specified in sealed instructions. Here the station was set up, and at a given hour got into communication with Broomfield, conversation being held between the two stations for some time. Two direction-finding stations, one at Chatley and one at Heybridge, then picked up messages from the Colchester station, and after taking the latter's bearings, communicated the same to Broomfield. Broomfield then collated these, determined the position of the Colchester Station, and communicated the result to the latter. In this particular case the position was located within a few hundred yards.

Space will not permit of a detailed description this week of the actual apparatus employed in this demonstration and in the telephone, but we hope to give some technical particulars in a future issue.

METAL CONSTRUCTION OF AIRCRAFT

BY A. P. THURSTON, D.Sc., F.R.A.E.S., F.R.MET.S., I.M.I.A.E.

(Concluded from page 714)



Intermediate Spar
In experimenting with metal construction one is impressed with the inconceivable number of designs which are possible. The most suitable design varies with each type of machine and the load which it is to carry.

The duralumin designs previously shown are suitable for a large machine.

In the case of machines of intermediate size, i.e., the order of 10,000 to 12,500 lbs., a suitable type of section is found to be one in which the main members are of channel section, which may be corrugated when necessary to reduce the effects of failure by secondary flexure. (Fig. 30) With thicker sections the central corrugations may be dispensed with. A spar of this type weighs only 75 per cent. of that of a corresponding spruce spar of the same strength.

Small Spar

A duralumin spar suitable for a small machine, such as the Avro, is shown in Fig. 31.

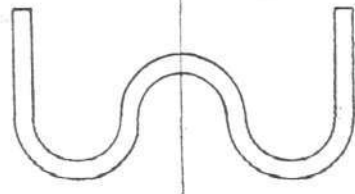


Fig. 30.

This photograph was taken after the wing had withstood a load factor of 10.7.

Fig. 32 shows a front view of the whole structure taken after failure.

Fig. 33 shows a side view of the complete wing structure taken immediately after failure.

The excellent way in which this construction has withstood this phenomenal load is clearly shown in the photographs, and requires no comment. The large initial deflection on the starboard side was due to the elongation of the brass thimbles fitted to the splicing of the wire bracing which is clearly shown in Fig. 31. This deflection ultimately caused the failure to occur on the starboard side.

Method of Testing Specimens

In investigating the suitability of a construction to withstand the loads which are to be put upon it, care should be taken to reproduce as nearly as possible the conditions under which the specimen will be loaded in practice.

Thus, the specimen should be subjected to the same bending moment and end load as in practice. Reference has heretofore been made as to the serious errors which have been made in testing wooden specimens in pure bending instead of in combined bending and compression. The same errors may be made if the correct procedure is not followed in testing metal construction. In the first experimental stages of metal construction the author was unable to get certain manufacturers to construct specimens longer than 3 ft. Arrangements were therefore made to test these specimens in shackles, as shown in Fig. 34.

The height of the shackle was varied to give the correct proportions of end load to central bending moment.

As soon as circumstances would allow, and suitable designs had been selected from the numbers tested, arrangements were made for the specimens to be made equal in length to the distance between the points of contraflexure in the actual span, and the end load L and the bending loads W were applied in the correct ratio until failure occurred.

The bending moment at the centre of the specimen, as is shown in Fig. 36, is the same as in the actual machine. Alternatively to the above the lateral loads W may be dispensed with providing the end loads L are given the correct amount of eccentricity to provide the necessary bending moment. Appendix IV sets forth the results of a few tests on various samples.

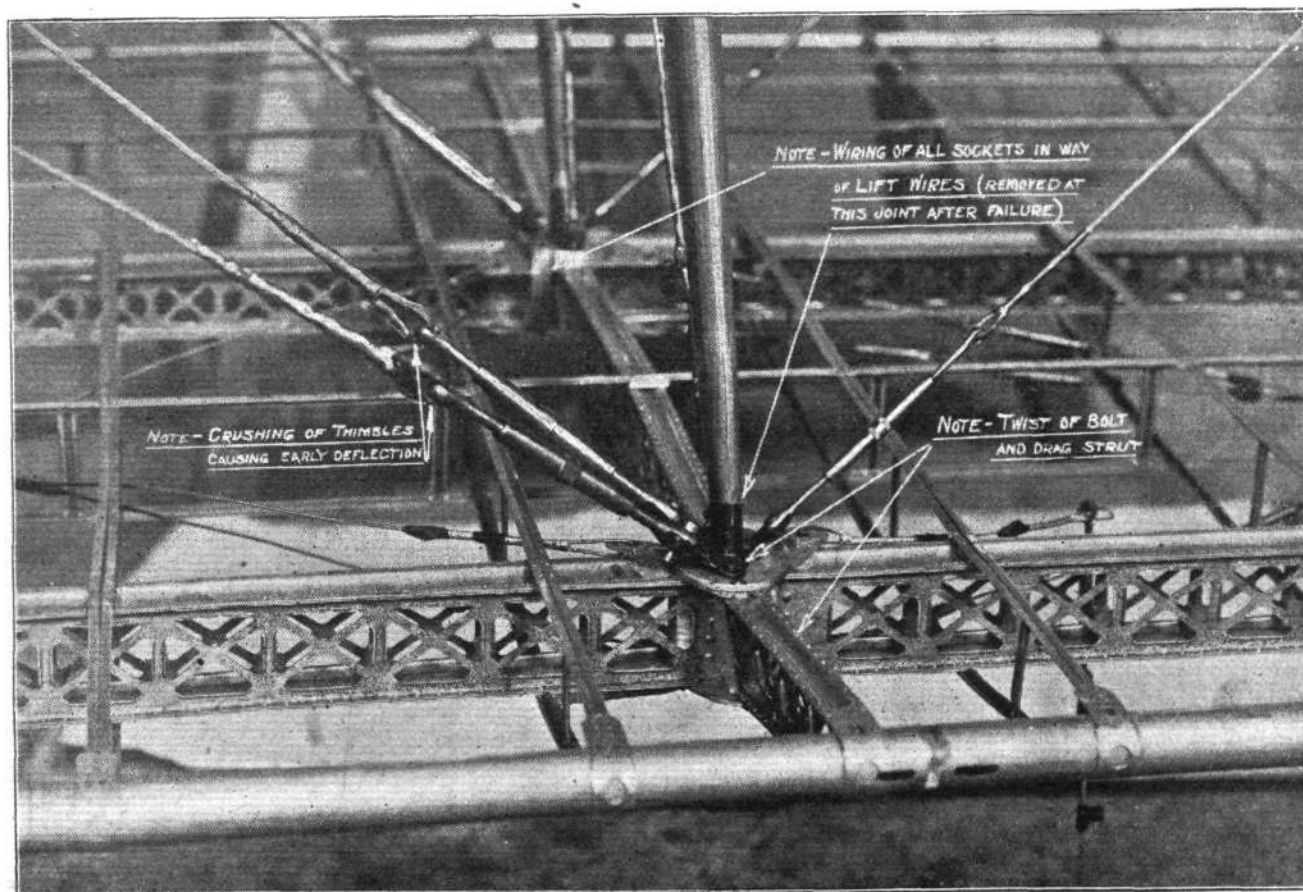


Fig. 31.

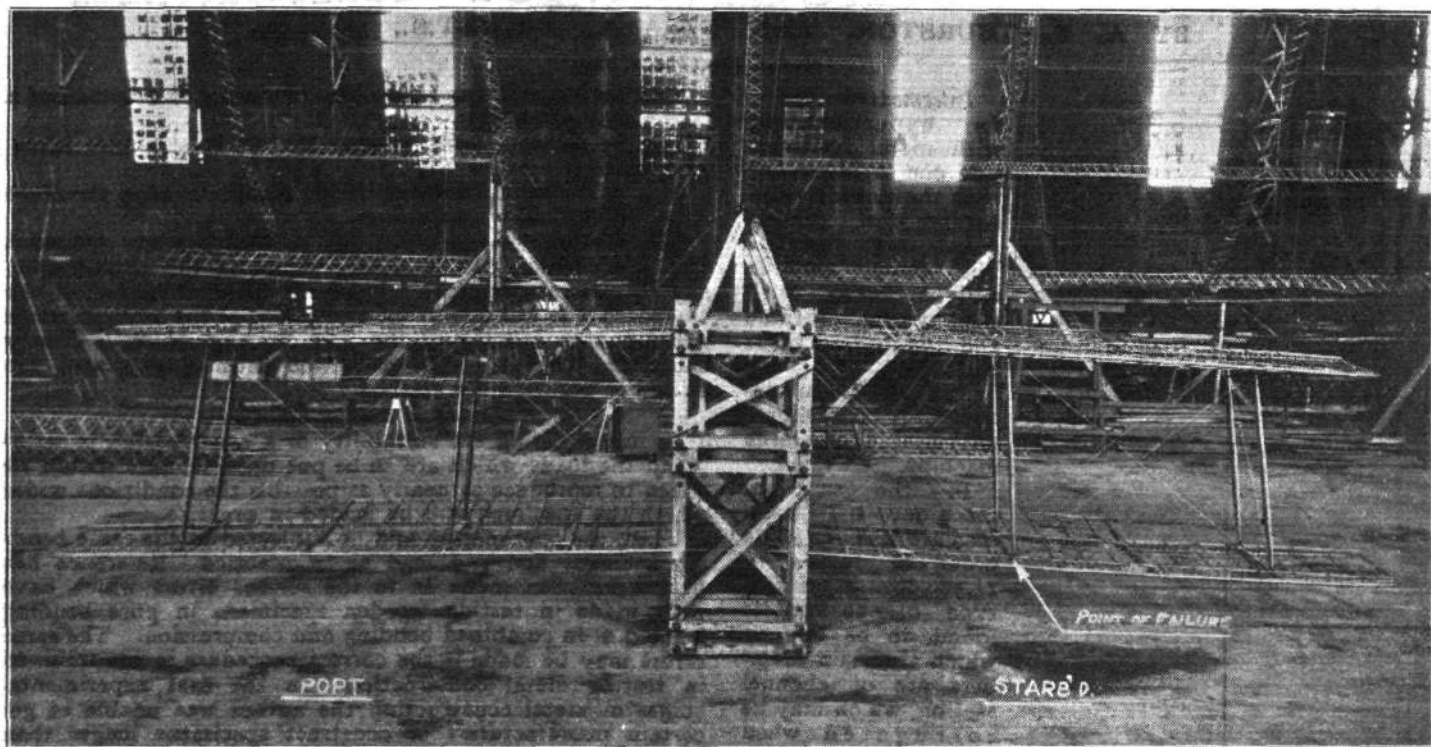


Fig. 32.

In presenting the subject of metal construction the author has felt that the problem is too vast to be dealt with as a whole. He has therefore confined himself to a few basic principles and solutions to act as the basis of a discussion

All this information now set forth has been obtained from private sources, but before leaving the Technical Department the author took action to place on record a much fuller account. This should now be available. He desires to record

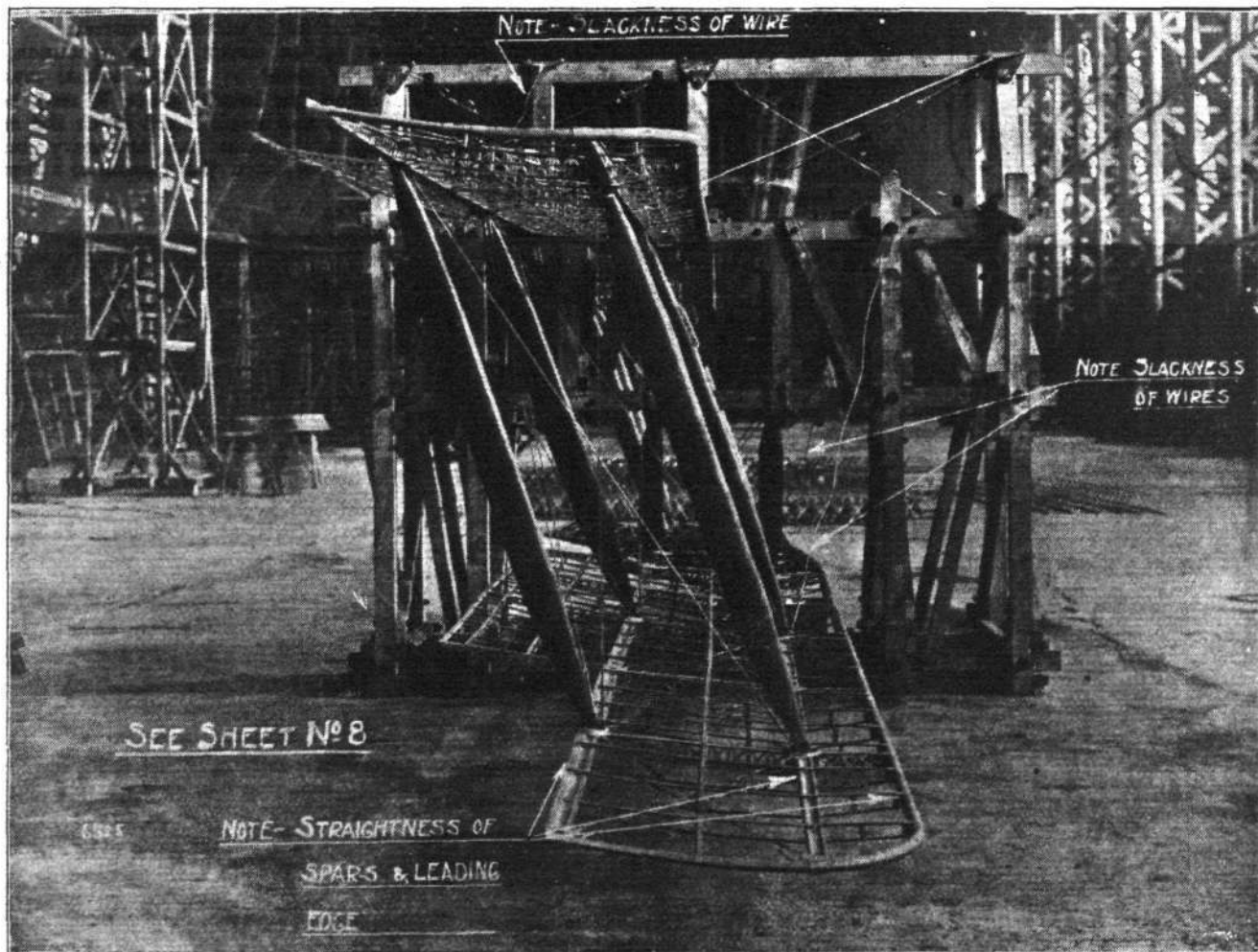


Fig. 33.

He feels, however, that metal construction has a great future, and in placing before you a little of the work carried out in the last few strenuous weeks of the War it is hoped that the subject will receive the attention that it deserves from our aeronautical engineers and designers.

his indebtedness to General Weir and the authorities of the Air Ministry for permission to read this paper, and to tender his sincere thanks to his colleague, Major Wylie, R.A.F., who has been associated with the author in the development of metal construction throughout the country. He would also

like to record his thanks to the various firms with whom he has been associated for their most courteous co-operation and for the ability and energy which they brought into requisition.

APPENDIX I

Metal Aeroplane Construction

Thin strip steel of various qualities, having thicknesses ranging from .014 in. to .028 in. have been experimented

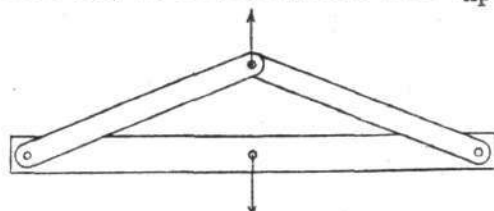


Fig. 34.

with by Messrs, Arthur Lee and Sons, Ltd., Sheffield, for the above.

This has entailed investigations upon a matter of 135 different samples, including the following:—

- (1) The influence of cold work upon the physical properties of thin strip.
- (2) The influence of "tempering" cold worked thin strips.
- (3) The influence of "tempering" hardened thin strips upon the physical properties.

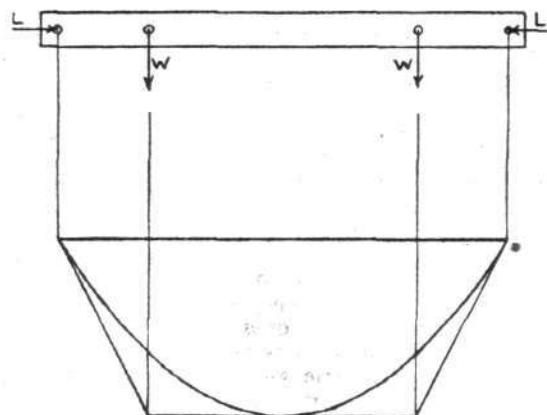


Fig. 36.

The attached graphs show the various influences. It was found that alloy steels were of no material benefit over plain carbon steels in the "as cold-worked condition"; the alloy steels requiring to be heat treated in order to bring out their good physical properties and be of any advancement over plain carbon steels.

Thin strips have been obtained and manufactured by us having yield points from 35 to 100 tons per sq. in. Not only

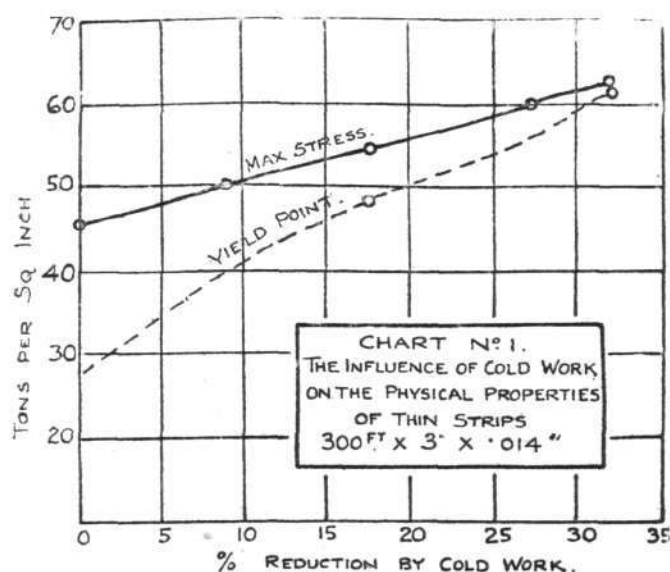


Fig. 37.

in carrying out these experiments has this been attained, but we have supplied on a commercial scale the Aeronautical Supplies Department and others with several tons of thin steel strips to the 60 ton yield specification in lengths of 300 to 400 ft. each.

The following is a short résumé of experimental work done by us:—

Cold Worked Steel Strips

It is found that where strips receive a greater reduction than 40 per cent. by cold work after annealing that they are made too brittle.

The breaking stress of the strips are related to the cold work put upon them by the formula $S = 30 + \frac{1}{2}R$.

S = maximum stress, $\frac{1}{2}R$ = half the reduction and $\frac{1}{2}$ is constant.

This formula we find works out very well with strips which do not receive a greater reduction by cold work than 40 per cent., and the following table bears this out, and also that with over 40 per cent. the calculated M.S. is too high:—

Sample No.	Actual Breaking Stress Tons per sq. in.	Calculated Breaking Stress from $S = 30 + \frac{1}{2}R$
0	33.9	$30 + \frac{0}{2} = 30.0$
1	45.5	$30 + \frac{31\frac{1}{2}}{2} = 45.65$
2	50.0	$30 + \frac{49\frac{1}{2}}{2} = 54.62$
3	51.8	$30 + \frac{60.35}{2} = 61.17$
**	30.0	$30 + \frac{0}{2} = 30.0$
4	43.2	$30 + \frac{25}{2} = 42.5$
5	47.0	$30 + \frac{41.75}{2} = 50.87$
**	30.0	$30 + \frac{0}{2} = 30.0$

The following table shows the influence of cold work on the physical properties:—

Influence of Cold Work on the Physical Properties of Thin Strips. Length of Strip 300 ft.

Size.	Condition of strip.	Yield point. Tons per sq. in.	M.S. Tons per sq. in.	Elongation per cent. on 2 ins.	Scleroscope test. Hardness.	Erichsen value.	Bend test over radius of 3 times the thickness.	Per cent. reduction by cold work.
3-1/8" x .022	*	27.2	45.6	11.0	22°	7.00	Good	None %
3-1/8" x .020	†	40.0	50.0	10.0	32°	6.80	Good	9.09
3-1/8" x .018	†	47.6	54.25	3.0	38°	6.35	Good	18.18
3-1/8" x .016	†	55.2	59.8	2.5	42°	4.90	Good	27.27
3-1/8" x .014	†	61.2	62.2	2.5	38°	5.00	Good	31.81

* Before cold work.

† After cold work.

The Influence of Tempering on the Physical Properties of Cold Worked Thin Strips. .028-in. thick.

Condition of strip.	Yield point. Tons per sq. in.	M.S. Tons per sq. in.	Elongation per cent. on 2 ins.	Erichsen value.	Bend test over rod .140 in. diam. with the metal.
As cold worked	40.75	40.75	4.0	5.6	Broken
After tempering at—					
200° C.	47.25	47.6	2.5	5.36	Broken
300° C.	46.5	48.2	4.0	4.23	Broken
400° C.	44.6	45.6	6.0	4.72	Good
500° C.	31.0	36.5	17.0	5.12	Good
600° C.	25.0	31.7	29.5	6.0	Good

See Chart No. 2.

Influence of Tempering Cold Worked Strips

The tempering or "blueing" from 0° C. to 400° C. has increased the yield point and maximum stress over the cold worked value, a list of which is given in the preceding table and shown by Chart 2. There appears to be a critical point between 400° C. and 500° C., where the fall in yield and M.S. occurs, whilst the elongation is greatly increased. The M.S. and yield point does not lower again to that of the original cold worked figures until about 425° C. is reached.

This phenomena is remarkable, but there is no doubt about it, as this has been proved by us many times, it being experienced on tempering all cold worked materials.

The bend tests are not improved by this tempering until over 425° C. is reached.

It may be of interest to mention at this stage that on making tensile tests on thin strip steels after the yield point has been reached they break in a peculiar manner, diagonally, with

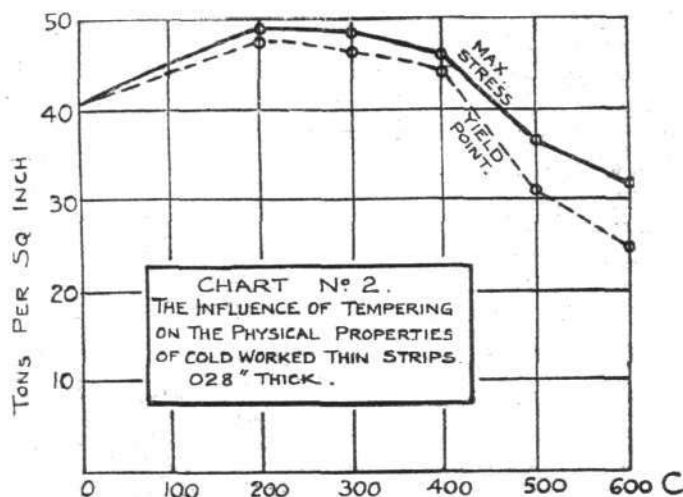


Fig. 38.

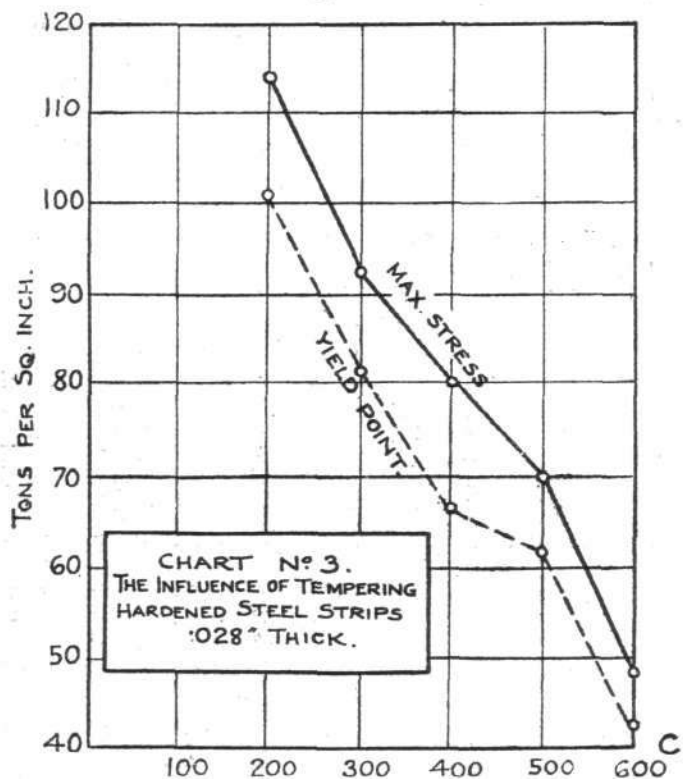


Fig. 39.

V top and bottom, and sometimes assume an X, then at the finish break horizontally.

The Influence of Tempering Hardened Thin Strips

Here we get an opposite effect to that which is obtained on tempering cold worked strips. On tempering hardened strips from 0° C. to 600° C. the M.S. and yield point are decreased whilst the elongation is gradually increased. The bend tests are improved from 400° C. to 600° C.

All bend tests have been made with metal that is lengthwise of the strip.

Hardened strips. Tempered at	Yield point. Tons sq. in.	M.S. Tons sq. in.	Elongation per cent. on 2 ins.	Erichsen value.	Bend test over .140 in. diam. rod.
200° C.	101.0	114.0	2.5	1.28	Broken
300° C.	81.8	92.3	3.5	2.80	Broken
400° C.	66.8	80.7	6.0	4.60	Broken
500° C.	61.4	70.2	9.5	4.62	Good
600° C.	43.4	48.0	11.0	3.70	Good

APPENDIX II

The problem before the steel maker may be briefly stated to fall under the following four heads:—

(1) The steel must be one which will give the highest possible tests, especially in regard to the true elastic limit, combined with a considerable ductility.

(2) It must be capable of being worked into the complex shapes required without showing any signs of cracking.

(3) The heat treatment must be of as simple a nature as possible, the temperature range being a fairly wide one.

(4) The material must be regular, so that the minimum tests may be always obtained by standard heat treatment.

It will readily be seen that in the nature of the proposition, a steel must be used which will give the maximum strength for a given weight.

If merely the tensile strength had to be considered there would be no difficulty in producing the necessary material, but, taken in conjunction with the other requirements, the problem does not admit of so ready a solution. Great ductility is also required, as the heat treated sheet or strip which is used in the formation of the spars P has to be formed into the necessary section, when in the heat treated condition, and this is necessarily done by cold forming the section in suitably shaped rolls or dies.

Some of the bends are very severe, requiring the strip to fold back upon itself, and as the strip must take this without any signs of cracking, it is obvious that great ductility must be an essential feature of the steel used. This property is also of great importance in those spars where a large amount of riveting is necessary, and as the rivet holes are punched out cold from the heat treated strip, and they must stand this operation without any splitting.

In addition to this, the steel must be capable of resisting shock as well as withstanding loads more or less gradually applied.

The tremendous strides made in the building up of spars by welding various members together has made a further and important demand on the qualities of the steels used, and as this method of spar formation seems likely to be of great use, only those steels which weld perfectly will be of any service.

The physical qualities of two steels which have proved highly satisfactory when great strength is required, together with all the other desirable qualities, are seen in the curves illustrated in Figs. 40 and 41.

It is very often found that good steel is of little commercial value, because the range of temperature for heat treatment is much too narrow, or else the operations are too complicated, especially when dealing with it in the form of thin strip. These limitations are of the greatest importance when the parts into which the material goes do not admit of being

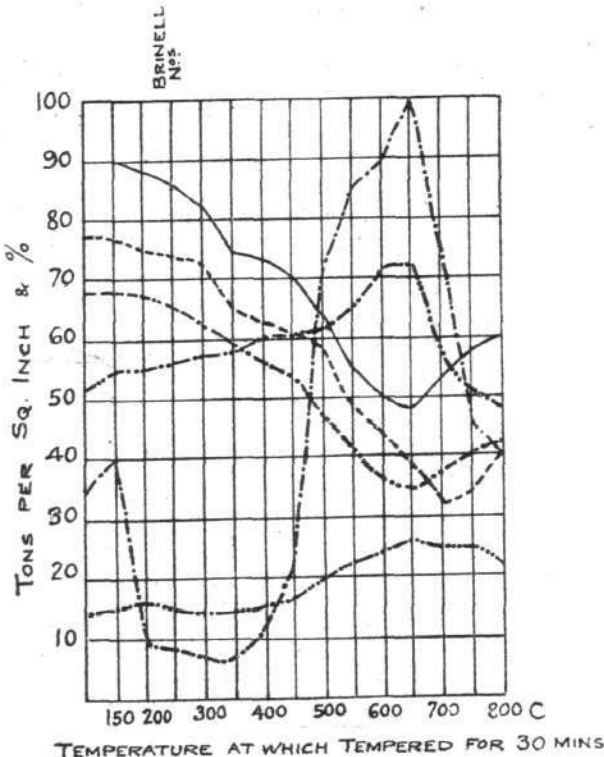


CHART. No. 4.

ELASTIC LIMIT TONS. Q ² ----
MAX. STRESS -----
ELONG % -----
RED. AREA % -----
BRINELL -----
IZOD FT/LBS. -----

K.E. 169 STEEL.
APPROX. ANALYSIS.
CARBON .15-.20%
CHROME 1-1.25%
NICKEL 3-3.5%
SULP. .03% MAX.
PHOS. -----

Fig. 40.

easily tested, or when the working up of the parts accentuates any of the errors in the heat treatment.

The steels in question require a heat treatment which admits

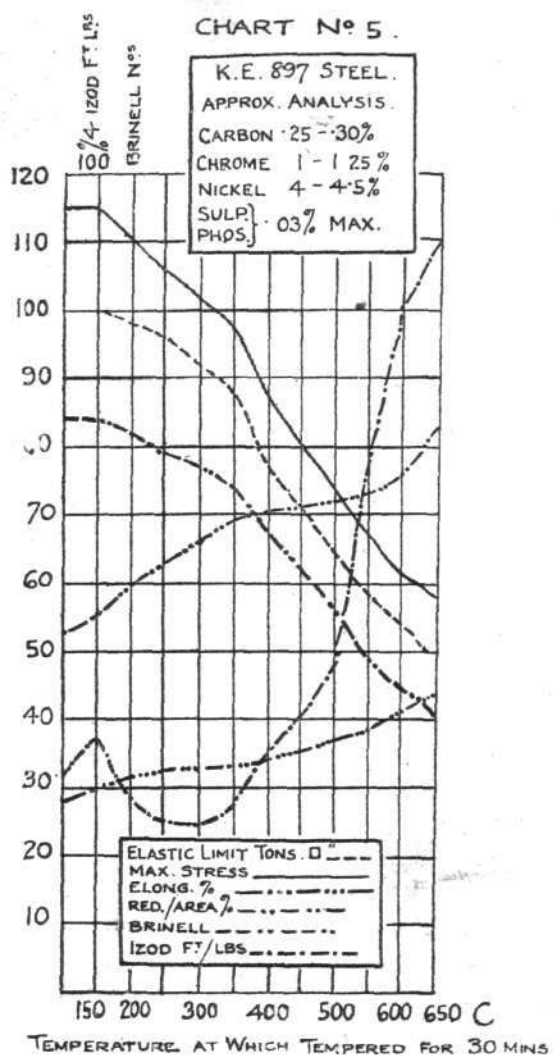


Fig. 41.

of a fair range of temperature in hardening, whilst the effect of tempering heats can be readily seen by reference to the curves.

It will be conceded that regularity is of vital importance,

Aeronautics at London University

At the meeting of the Senate of London University on May 28, it was resolved to institute a Chair of Aeronautics tenable at the East London College. This is in addition to the Zarahoff Chair of Aviation at the Imperial College of Science and Technology, the first appointment to which has still to be made, although the requisite funds were given to the Government nearly two-and-a-half years ago. We refer further to this matter on page 726.

No Flying to the Derby

THE Air Ministry last week made the following announcement:—

It has been decided in the interests of the public to prohibit the navigation of aircraft of every class and description over the grand stand on the race course on Epsom Downs, Surrey, and the lands surrounding it to a distance of two statute miles in all directions from its boundary, during the period from 12 o'clock midnight, June 2-3, to 12 o'clock midnight, June 6-7.

This precaution has been taken to obviate any interference which might be caused to the racing, and also such accidents to the public as might possibly occur owing to the sudden movement of great masses of people occasioned by the action of aircraft overhead.

A Dunkirk Reunion Dinner

OFFICERS who served in the Dunkirk Command of the R.N.A.S. and R.A.F. between 1914 and the Armistice propose holding a dinner in London on or about June 11. Those who wish to be present should send their names and addresses to Brigadier-General C. L. Lambe, 159, Knightsbridge, London.

as unless minimum tests can be relied on all manner of difficulties will arise, not only in the actual strength of a part, but in the manipulation of the material when formed into shape. These difficulties have all been overcome in the steels in question. There is nothing new claimed in their composition, but the processes involved from the raw material to the finished strip have been carefully developed, so that every precaution is taken to eliminate sources of trouble.

Tests are carried out after every process from the production of the ingot forward, so that no material is allowed to pass from any one stage of manufacture to another unless it is up to the standard for that particular stage. It is the careful and ceaseless testing of the steel which has had so much to do with its success in steel spar construction.

APPENDIX III

Ingot after being analysed and tested follow the usual processes of manufacture, viz., forging, hot and cold rolling. After each process the steel is examined, and numerous tests are made and analyses are taken. The re-heating for forging and hot rolling and the frequent annealings during the repeated cold rollings require the utmost care and precision to ensure freedom from decarbonisation and other defects produced by incorrect heat treatment. In cold rolling process care must be taken to avoid crushing by over rolling. The strips when finished are in coils of about 300 ft. in length, the width up to 5 ins., and thickness generally running between .028 in. and .011 in., although for making models strip has been supplied as thin as .004 in.

After cold rolling the strips are hardened and tempered by special process, in which the temperatures of furnaces and quenching baths are carefully governed by pyrometers, the scale formed in hardening being afterwards removed by a special scouring process. The strip is then finally gauged, tested for tensile strength and bending capacity longitudinally and transversely.

The following tests, with specimens showing examples of bending, illustrate the physical properties of the strip, which is ready for forming into any required section, and is capable of being riveted or welded without further treatment whatever. The steels which have hitherto been used for this purpose are K.E. 169 and K.E. 897.

No.	Size.	Max. stress tensile.	Scleroscope hardness.	Quality.
1	4½ in. × .015 in.	43.5	32	K.E. 169
2	3½ in. × .022 in.	52.2	49	"
3	2.88 in. × .004 in.	53.5	51	"
4	4 in. × .018 in.	71.6	59	"
5	4 in. × .015 in.	75.2	61	"
6	3½ in. × .018 in.	101.3	65	K.E. 897
7	1.68 in. × .015 in.	103.6	75	"

An Aircraft Insurance Scheme

WE understand that a scheme has been formulated by the Aviation Insurance Association of 1, Royal Exchange Avenue, London, E.C. 3, whereby the profits of aircraft damage insurance business will be participated in by the policy holders. It appears that some owners of aircraft think that the rates charged for accidental damage at present are too high, but if this should prove to be so, the objection will be removed by the participating policy whereby excessive profit (if any) will be returned to the insured.

By this scheme the insured will participate in 50 per cent. of the profit derived from aircraft damage insurance business. The whole of the premiums derived from participating aircraft business will be pooled, and the insured will, as soon as the underwriting accounts for the year have been closed, participate in the above proportion of the profits according to the amount of the premiums he has paid. In no case, however, will the amount payable under this scheme be more than 75 per cent. of the actual profit on the policy in question, and where a policy has made a loss to the underwriters, there will, of course, be no return made.

The scheme being made up only when the risks of the underwriting year have been closed, no provision is necessary for unexpired risk or for outstanding claims, and the amount of profit can be calculated therefore on a very simple basis.

The scheme is one which should appeal to owners of aircraft, who will be assured that should experience prove the rates quoted to be excessive, they will be corrected in this simple manner.

AIRISMS FROM THE FOUR WINDS.

In the Afghan trouble war in the air has again taken a front seat. The comparatively very small samples of bombing which the Amir's troops and citadels have so far experienced have already had their effect. Not only was Dakka, an Afghan keystone, hurriedly evacuated, but now our aircraft has so put the fear of God into the Amir and his satellites that he is squealing "feign-its" with no uncertain squeal. Another reminder that the nation which rules the air rules the world.

"CAN M.P.'s live on £400 a year?" is the heading of a long exposition in one of the London morning "inspired" dailies.

We sincerely hope not, as then perhaps they'll have to take to some respectable occupation, instead of drawing absence-of-work dole. These days of Coalition they don't have to file into the Lobby in the whipped-up Government queue, even once a week, like their fellow dole recipients at the Labour Exchanges or other paying-out depôts.

MR. WINSTON CHURCHILL can never be accused of mincing words against his convictions. Like most impetuous men, at times he must necessarily make mistakes, but in the long run the very fear of what he may say and do next has probably made many a man pause in the launching of some political scheme of moment. Over the recent threatened police strike, Mr. Churchill has in his customary way spoken out pretty plainly, and if his accusations as to the work and methods of a labour newspaper be true, the only marvel is that instant Government action should not be taken to suppress the newspaper in question and to bring to justice each and every one concerned in the accusation.

MR. CHURCHILL'S comments referred to were made in last week's Parliament in connection with the so-called "secret" official circular to home troops as to their attitude in the event of an industrial strike, &c.

Mr. Churchill said the circular had now lapsed, but he is still receiving weekly reports on the temper of the Army.



The King of Spain inspects a Handley Page machine. Lieut. Mayne explaining details to the King and the Spanish Minister of War at the Military Aerodrome at Cuatro-Vientos.

If it be only in justice to the R.A.F. we should like to see that enquiry materialise in regard to the bringing over of dogs from the Continent in aeroplanes. There should be no difficulty in bringing it home to the culprits, if the accusation be true, and then the suggested Court-Martialling of the delinquents should automatically follow, although the "smart sentence" mentioned of loss of gratuity, as being likely to check this flagrant act against the public, hardly seems to us to meet the case. Much more drastic handling in our opinion is needed, whether the delinquents be identified in the R.A.F. or any other quarter. Nothing short of severe imprisonment "without the option" to our view, will effect a cure for selfish mania of this sort. The position is decidedly unpleasant for the R.A.F. now that the official at the Board of Agriculture who is mainly responsible for the administration of the Rabies Order is reported to have definitely stated that information recently obtained satisfied the Board that many officers of the R.A.F. were flagrantly disregarding orders and were smuggling dogs into this country from France and Belgium.

Coming to the circumstances in which the circular was published, he pointed out that it was a confidential document which had been stolen. "It has been published by a newspaper with the deliberate object of causing trouble and mischief," he said. "The whole intention of this paper is to provoke an outbreak in the form of a mutiny or a general strike, or, preferably, both together, in the hope that a general smash up and overturn of society may result. Whether it is discharged soldiers, or the police, or the soldiers still retained in the Army, or the workmen who are engaged in the vital services of the country, the object of this paper is to weave them all together and rouse them all up to make a general overthrow on the Russian model.

"I am asked, Why do you not prosecute this revolutionary organ? The answer is simple. We believe that the structure of British society is sufficiently stable and sufficiently solid to enable us to allow even this unbridled licence. We know the paper has a feeble circulation. We know that doctrines it puts forward are exceedingly repulsive to responsible leaders of Labour, and are not shared by all that great, sane, sober



"Flight" Copyright.

Commander Read and his crew enjoying some light refreshments at Hendon after their arrival there on Sunday

opinion which influences enormously the working classes, and we are very anxious to preserve in this country a greater measure of free speech, even unbridled speech, than exists in any other European country, and we are prepared to run some risks. I don't say we could go on indefinitely on that line. Although the great majority of the nation are perfectly indifferent, indeed unconscious of such incitements, the day may come when a local or partial disturbance may lead to serious loss of life, and in that case I trust that the instigators of the crime will take their places alongside those whom they have misled. The improvement in our

affairs has been so lasting and continuous, judged by every test, that we can afford to view coolly these undoubted attempts to stir up strife. I have called attention to the kind of mischief-making that is going on, and I ask the House to support the Government in putting up with it for a further period."

AND quite good as far as it goes, but to take no action whatever decidedly spells weakness, and for the sake of the real working man, the sooner drastic steps to crush this form of Bolshevism are taken the better for the solving of the re-settlement of industry problem which is so agitating the minds of those who are anxiously watching recent developments.

THAT indefatigable explorer and voyager Mr. Frank Hedges Butler, of Aero Club foundation fame, who after tripping round from London to Gibraltar, thence through the various wine districts of Spain, Portugal and France, arrived in Cologne recently, "hopped" back last week by aeroplane from the German cathedral city to England in about two and a half hours by way of a wind-up to his circular tour. And when we struck him at the Club the next day he was as cheery as ever, perhaps a bit younger than usual, and brimming over with sparkle, to rival the best of those vast stocks of the "Boy" which still remain concealed in his wonderful range of Regent Street cellars. F.H.B. is, indeed, the incarnation of bright optimism.

THE accuracy of the information distributed from the other side of the Atlantic by newspaper correspondents recently makes one wonder where they picked up their remarkable ideas on matters pertaining to aviation! Possibly the first-class Press men didn't relish the idea of waiting for months in so dull a place as St. John's to see something which might never happen, so others had to be sent. Anyway, what is to be said of a man who cables to an expectant public over here this sort of sentence: "Lieut. J. Porte is expected here daily in connection with the start of the Handley-Page seaplane"?

First of all, Col. Porte is not a lieutenant. Secondly, he is not expected there. Thirdly, he has nothing to do with Handley-Page machines. And fourthly, and lastly, as the Army chaplain says, the Handley-Page is not a seaplane. Otherwise the information is quite correct and most interesting. Can you beat it?

THE TERMS OF PEACE FOR AUSTRIA

As will be seen from the following extracts from the official summary of the Peace terms presented to Austria, they are similar, as regards aerial matters, to those presented to Germany:—

PART V.—Air Clauses

The Air clauses provide that the armed forces of Austria must not include any military or naval air forces. The entire personnel of the air forces in Austria is to be demobilised within two months.

The aircraft of the Allied and Associated Powers are to enjoy full liberty of passage and landing over and in Austrian territory until January 1, 1923, unless prior to that date Austria is admitted to the League of Nations or is permitted to adhere to the International Air Convention.

The manufacture of aircraft and parts of aircraft is forbidden for six months.

All military and naval aircraft (including dirigible and aeronautical material) are to be delivered to the Allied and Associated Governments within three months.

Knighthood for Mr. Charles Bright

It was announced in the Colonial Office List in the Birthday Honours on Tuesday that the King had been pleased to approve of the honour of Knight Bachelor being conferred on Mr. Charles Bright, F.R.S.E., M.I.C.E. It will be recalled that Mr. Bright was one of the most active members of the R.F.C. Enquiry Committee.

R.A.S. Honours Sir Oliver Lodge

With the approval of the Duke of Connaught, President of the Royal Society of Arts, the Council have awarded the society's Albert Medal for 1919 to Sir Oliver Lodge, "in recognition of his work as the pioneer of wireless telegraphy." The medal was instituted in 1864 to reward "distinguished service in promoting arts, manufactures, and commerce."

The presentation will be made by the Duke of Connaught at Clarence House on Friday.

General

General articles provide for the modification of Austrian laws in conformity with the preceding clauses. Austria agrees not to accredit or send any military, naval or air mission to any foreign country, nor to allow Austrian nationals to enlist in the army, navy, or air service of any foreign Power.

PART XI.—Aerial Navigation

Aircraft of the Allied and Associated Powers shall have full liberty of passage and landing over and in Austrian territory, equal treatment with Austrian planes as to use of Austrian airdromes, and with most-favoured-nation planes as to internal commercial traffic in Austria. Austria agrees to accept Allied certificates of nationality, airworthiness, or competency and licences, and to apply the convention relative to Aerial Navigation concluded between the Allied and Associated Powers to her own aircraft over her own territory. These rules apply until 1923, unless Austria has since been admitted to the League of Nations or to the above Convention.

Air Work in Afghanistan

If the appeal for peace of the Amir of Afghanistan is sincere, it would appear to have been due largely to the effective work of the R.A.F. Throughout the operations the R.A.F. has carried out valuable reconnaissance work and many strategic points have been heavily bombed several times, notably Jelalabad and Kabul, where, after bombs had been dropped on the powder factory, a large explosion was observed.

A French Height Record

At Issy on May 28, Lieut. Cazale, one of the leading French aces, made an attack on the height record. On a Nieuport biplane, with 300 h.p. Hispano-Suiza engine, he went up to 9,300 metres (30,690 ft.) in 41 minutes, and descended in 29 minutes. The machine was of the "series 29" type, of 9.7 metres span and a lifting surface of 27 square metres. The trial was officially observed.

POSSIBILITIES OF AERIAL TRANSPORT IN PERU

A HIGHLY interesting paper under this heading was read by Mr. G. M. Dyott, late Flight Commander, R.N.A.S., before the Royal Aeronautical Society on May 28. The lecture and the cinematograph films and lantern slides accompanying it were of the greatest interest. We should have liked to published the lecture in full, but lack of space prevents this, and we must reluctantly confine ourselves to a brief résumé of the paper.

Mr. Dyott opened his lecture with a few remarks on the topography of South America in general, and Peru in particular. The chief interest of the country, the lecturer said, lies in the great variety obtaining, sandy desert vibrating with heat, mountain peaks glistening in the land of perpetual snow, deep rocky gorges and vast tropical forests lying within a few days' ride of one another. The distances are relatively short, but the difficulty encountered in traversing them is colossal. When travelling by river the whirlpools and rapids make progress slow and dangerous. Besides, the river, as it winds and wriggles over the low-lying ground, covers two or three times the distance representing the straight line drawn from point to point. These difficulties introduce the question of aerial transport, especially as Peru is rich in mineral and other natural resources which are often situated in districts almost inaccessible in any other way. The question of landing grounds should not, in the lecturer's opinion, offer any great difficulties, as at any rate near the coast there are great numbers of suitable grounds which would require very little work to put them in order, and even among the high peaks of the Andes there are numerous table-lands of considerable size which would require very little draining and levelling to make them suitable. As to the introduction of aircraft, Mr. Dyott said that, as regards any saving in time, this is of small importance in any of the Latin American countries, time being there an article of very little value, and no help could be expected from the local inhabitants. By way of an example he mentioned that quite recently the Colombian Government was approached by an American firm with a view to establishing aerial service between Bogota and the coast. After some discussion the authorities replied that should the venture prove a failure it probably meant fatal accidents in which Columbians would be killed. If, on the other hand, it was successful, then a lot of foreigners would be brought to the capital, both of which alternatives were undesirable. This is quite typical of the attitude of the inhabitants of many sections of South America.

Although under normal conditions the aeroplane cannot, the lecturer pointed out, compete with railways, &c., in the transportation of goods and merchandise, there are abnormal conditions when the aeroplane can come to the rescue and show a profit. The following is a typical example of such instances:—

On the east side of the Marañon river near Soledad, in the department of La Libertad, are some gold mines being developed by a Russian, Sr. Tarnivsky. About 60 tons of material and machinery has been brought up from Salaverry on the coast 90 miles away at a cost averaging £100 a ton. It has taken three full years to do this and another six months will have passed before the mine and mill are in operation. A suitable aeroplane would have moved the same freight with the greatest ease within six months and show a profit at the same rate of £100 per ton. The profit would not have been all on the side of the transportation company either, as the owners of the mine would have started production three years earlier and thus saved interest on capital for three barren years, to say nothing of profits that might have been made during that time had the mine been working.

The prospects of developing the inland waterways of the country with hydro-aeroplanes are decidedly good. The many tributaries of the Amazon offer natural landing areas over thousands of miles of territory, which would cost nothing to prepare or maintain. Launch service on the rivers is slow, uncertain, and at some seasons difficult. A comprehensive system of hydro-aeroplanes would do wonders in bringing in wild and uninhabited regions within easy reach of civilisation. It took the writer nearly a month to go from Iquitos to the Pogo de Manseriche, a distance which a fast hydro-aeroplane could traverse inside five hours. There would be nothing very difficult about starting regular service of this kind—in fact, it would be extremely easy as compared with service in the Sierra, when once a definite plan of action had been decided on. A town like Moyobamba would benefit largely, for although situated on the river Mayo, which is of ample width, it is cut off from all communications with the main river on account of a quarter of a mile of rapids below the town which is an effective barrier to all launch service. A hydro-aeroplane could fly past this trivial obstruction and thus afford a much

needed outlet to the Huallaga river and thence to Iquitos. As it is, Moyobamba is completely isolated, but for a perilous trail, viz., Balzapoerto, which is enough to deter the most hardened traveller from passing that way. The journey to Chachapoyas to the westward is over a trail equally as bad, and the one south to Tarapota is no better.

Gold dredging has been attempted by many companies in the Santiago and Alto Marañon rivers. Each effort has met with failure after spending colossal sums on machinery and strenuous efforts in bringing the equipment up river. Failure has always resulted because adequate means of rapid communication with civilisation was never maintained. In one case a small but important part of the machinery broke; a canoe was despatched to Iquitos with the part, but all was lost in the river. After two months waiting another party set out and after eight months returned only to find the dredge overgrown with vegetation and abandoned by the few remaining men who had not died of fever. Had the company spent £3,000 on a good hydro-aeroplane they would have been within four hours of Iquitos and able to meet a situation of this kind with great promptness. After all, an expenditure of 2 per cent. on the value of the machinery would not have been an extravagant price to pay.

The lecturer then related some very interesting observations he had made with regard to meteorological conditions and the prevailing winds, with the effects on these of the mountain ranges. Contrary to general opinion, Mr. Dyott did not consider the crossing of the high ridges of the Andes difficult, but flying over some of the valleys might, he thought, be so in a machine that was somewhat under-powered, and after 4 p.m. it might even be really dangerous on account of the downward trend of the winds.

With regard to flying over the Amazon, the lecturer said:—

In closing I would like to make a few remarks in regard to the river Amazon, as I suppose that there is no one who having had experience with seaplanes has not thought at some time or another about flying up this mammoth river and its many tributaries. Personally I would prefer to do the first 2,147 miles as far as Iquitos, the inland port of Peru, in one of the comfortable ocean-going steamers belonging to the Booth Line. This part of the journey can be divided into three sections—Salinas, where a pilot is taken on, to Para 110 miles; Para to Manaos 865 miles, and thence to Iquitos 1,172 miles. Up to this point the river is so colossal that there is not much pleasure in traversing it even in a 3,000-ton steamer. Its overall width at Iquitos is roughly two miles, the main channel being 850 metres, then an island, and then a more shallow channel of 1,700 metres width. High water marks occur in the months of March, April and May and low water July, August, September. It so happens that the northern tributaries flowing down from Ecuador are in flood at a different time of the year from the southern tributaries, but as the seasons are not diametrically out of phase with each other there is a pronounced flood period in the river during the months mentioned.

From Iquitos to the celebrated Pongo de Manseriche there are a few tiny settlements and a small military post of Baranca. The hydro-aeroplane could alight anywhere along this part without the slightest trouble, but as there are so few habitations, sometimes 100 miles apart, and these only inhabited by half-caste Indians, there would not be much opportunity of trading. From the Pongo to Bella Vista, a distance of approximately 150 miles, landings on the river could only be made at special points, as there are many gorges and rapids and the water runs with considerable velocity.

During the discussion following the lecture, General Brooke-Popham said he thought it would be an excellent idea if more papers of this nature were read before the Royal Aeronautical Society, since their educational value was very great indeed, and it was important to know from men who, like Commander Dyott, had personally investigated conditions whether or not a given country was suitable for the introduction of aircraft.

Capt. Thurston said he could endorse all the lecturer had said about the inhabitants. He further pointed out that his experiences in South America had shown him that machines used there would have to be of, not only special design, but also of special construction, since the insects would make short work of any machine built in the ordinary way, and he knew of no glue that would withstand the climate.

Lieut.-Col. Cave-Brown Cave expressed the opinion that, from the lecturer's description of the country, it appeared to him that the airship would, in the majority of cases, prove a more serviceable craft than either the aeroplane or seaplane. Personally, we are inclined to agree with him.

AVIATION IN PARLIAMENT

The International Convention

Replying to Mr. G. MURRAY, in the House of Commons on May 26, who asked the Under-Secretary of State for Air whether the Convention relating to Air Navigation has yet been agreed to by the Allied and Associated Powers, and, if so, whether he will lay the document upon the Table of the House?

Genl. Seely: Yes, sir; I am glad to be able to tell the House that on Thursday last, in Paris, the Aeronautical Commission held its final meeting, and agreed to a Convention relating to Air Navigation. On this Commission the five principal Powers are represented, as also are Belgium, Brazil, Cuba, Greece, Portugal, Roumania and Serbia. The seven smaller Powers enumerated have been appointed by the Supreme Council to represent, on the Aeronautical Commission, all the smaller Powers at the Peace Conference. The Commission will agree upon a covering Report to be submitted to the Supreme Council. A few reservations by the delegates of some of these States will be included in this Report. I do not expect that those reservations will affect the usefulness of the Convention. The document is of 56 pages, embodying general principles, nationality of aircraft, certificates of air-worthiness and competency, and many other matters of great importance to air navigation. It is of great interest, and I hope to lay it on the Table at an early date.

Cypress for Aeroplanes

Mr. REMER asked the Under-Secretary of State to the Air Ministry whether he is aware that one of the co-opted members of his Timber Committee was the official responsible for sanctioning the use of cypress for aeroplanes; whether he is aware that not more than two members of the Committee have any practical experience of sawing or converting timber; whether he will state the date that this Committee was appointed; and whether he will invite the National Federation of Sawmill Proprietors to nominate additional representatives to assist him in this important work?

Genl. Seely: I cannot accept the suggestion contained in the first part of the question. The decision was one arrived at by the responsible Technical Department on consideration of all the factors involved, one of which was the prospect of a future failure of supplies of better tried types of wood. The Timber Sub-Committee of the Conjoint Board was appointed on October 10, 1917. Its composition is, I think, adequately representative for its purposes, but I will communicate the suggestion in the last paragraph of my hon. friend's question to the Conjoint Board.

Aircraft Insurance

Sir A. FELL asked the Chancellor of the Exchequer if his attention has been called to the dissatisfaction of those who have suffered damages by German aircraft or bombardments and the amount of the payments made to them under their anti-aircraft insurance policies; if their claims were cut down in almost every case and the insured were forced to accept the reduced sums or else get nothing; if the sums received in satisfaction of damage in few, if any, cases were sufficient to reinstate the premises; and if, when the German indemnity is paid, these persons who suffered damage will be repaid the full amount of the reparation?

Sir Auckland Geddes: My right hon. friend has asked me to answer this question. The payments made under the Government aircraft and bombardment insurance policies, have in all cases been made in accordance with the terms of the policies and I am not aware of any general dissatisfaction as suggested in the question. As regards the last part of the question I would refer my hon. friend to the answer given to him by the Leader of the House on Monday.

R.A.F. Motor Cars

Lieut.-Col. W. GUINNESS asked the Under-Secretary of State to the Air Ministry how many motor cars are allotted to the civilian officials of the Air Ministry?

The Under-Secretary of State for Air (Maj.-Genl. Seely): Six. Lieut.-Col. Guinness: Do the Regulations allow these cars to convey officials to and from their residences or do they come by bus?

Maj.-Genl. Seely: I think they are permitted to convey the officials from their residences. I hasten to say I think it is very reasonable that they should.

Lieut.-Col. Guinness: Is the right hon. gentleman aware that the Leader of the House said yesterday that Regulations were issued limiting cars strictly to official business?

Maj.-Genl. Seely: Yes; and I regard it as official business for these Civil officials to go to their residences or come from them to their offices. If a different policy is laid down, we shall conform to it, but I say at once, on behalf of those to whom the cars are allotted, that I think it would be a mistaken policy to force these people, who are giving their services to the State, very often free, to go to the expense of hiring cars.

Air Ministry Accommodation

Maj. BOYD-CARPENTER asked the Under-Secretary to the Air Ministry what is the present amount paid for No. 4, Thurloe Place; what is the amount of ground rent for these premises; with whom the rent has been arranged; and who was the owner at the time of the arrangement?

Maj.-Genl. Seely: The rate of compensation paid for the occupation of 4, Thurloe Place, is £2,520 per annum. The ground rent is £2,295. The rate of compensation was settled by the Defence of the Realm Losses Commission, the legal owner at the time of the arrangement being a Controller appointed by the Board of Trade to wind up the business of the Continental Tyre Co., Ltd.

Maj. Boyd-Carpenter asked what is the number of officers comprising the staff known as the South-Eastern area; what necessity there is in accommodating them in such premises as No. 4, Thurloe Place; whether they could not be accommodated at Kenley or Hounslow in huts, thus saving public money; and whether any attempt was made to so accommodate them?

Maj.-Genl. Seely: The present number of officers engaged at Thurloe Place is 81, the number of other ranks and of clerical staff being 288. The possibility of these headquarters being located out of London was fully considered, but it was decided that the administrative disadvantages which would follow were too great to allow of that course being adopted. A large

amount of public money has been saved by the move from Covent Garden Hotel, etc., to Thurloe Place.

The Transatlantic Flight

Lieut.-Col. W. GUINNESS, on May 28, asked the First Lord of the Admiralty if he will state what would have been the cost per month of keeping a line of ships stretched at intervals of 50 miles across the Atlantic while awaiting favourable weather for the transatlantic flight?

Dr. Macnamara: I really do not think that any good purpose would be served by endeavouring to work out this cost, though, of course, it would be considerable. Neither do I think it is primarily a question of cost at all. The real question is what is the proper function of the Navy, and how far it is desirable and possible to add to its duties by obligations such as those indicated in my hon. and gallant friend's question. On that, as has been said more than once, the present commitments of the Navy are heavy and responsible. They cannot under any circumstances be set aside; and its resources leave no margin whatever for undertaking duties such as those referred to in the question.

Surplus R.A.F. Aeroplanes

Col. ASHLEY, on May 29, asked the Under-Secretary of State to the Air Ministry if he will offer to the Overseas Dominions and Colonies some of the surplus aeroplanes now in the possession of the Air Ministry, with a view to their being used for postal and similar services?

The Under-Secretary of State for Air (Maj.-Genl. Seely): This question is at this moment being considered. Perhaps my hon. and gallant friend will repeat his question next week. Since I drafted this answer a satisfactory conclusion has been arrived at by the Government and I hope to make a satisfactory announcement when the hon. member repeats his question.

Lieut.-Col. Ashley: Will this be given as a free gift or will it be a purchase?

Maj.-Genl. Seely: As a free gift to the Dominions, the Crown Colonies and to India.

Lieut.-Col. Sir Samuel Hoare asked the Under-Secretary of State to the Air Ministry whether, in view of the high prices now being realised for obsolete and old motor cycles and cars being sold by Government Departments, it would be desirable to offer some of the new aeroplanes, now being broken up by his Department, to the public by auction sale so as to test the market on this matter?

Maj.-Genl. Seely: The aeroplanes which are being reduced to produce are those which are obsolete for war purposes and unsuitable for civil aviation. His Majesty's Government accordingly could not accept the responsibility of putting them on the market. The responsibility of the Air Ministry ends when they have decided what machines are surplus and which of them are obsolete for service use and unsuitable for civil aviation. Thereafter the question of disposal rests with the Disposal Board under the Ministry of Munitions.

Lieut.-Col. Sir S. Hoare: Why could not the right hon. gentleman put some of these on the market to see if there is a demand for them, and at the same time make it clear that any purchaser purchases them at his own risk?

Maj.-Genl. Seely: That is a matter for the Disposal Board of the Ministry of Munitions, and questions on that subject should be addressed to them.

Lieut.-Col. Moore-Brabazon: Have steps been taken to dispose of some of these machines to neutral countries for trade purposes?

Maj.-Genl. Seely: I have just announced the decision of the Government to make a free gift to the Dominions, Colonies and India of those required for certain specific purposes, but the disposal of the machines is a matter for the Disposal Board of the Ministry, and I shall be obliged if the hon. and gallant gentleman will address his questions to them, as they have all the facts at their disposal.

R.A.F. Casualties

Mr. CLOUGH asked how many casualties there have been in the Air Force since the Armistice up to the present time, mentioning in addition those which have had a fatal termination?

Maj.-Genl. Seely: The reply is as follows: Officers, fatal, 374 up to May 25, 1918, for Home and Overseas; other ranks, fatal, 848. The above figures are up to April 30, as it was not possible to work out the information up to a later date in the time available. The figures for non-fatal casualties up-to-date are being inquired into.

Miss Douglas-Pennant

Sir ROBERT THOMAS asked the Under-Secretary of State to the Air Ministry whether he has received a communication from Miss Violet Douglas-Pennant, dated May 3, which is a *prima facie* case, such as he required to have before granting the inquiry; whether an answer has been sent to Miss Douglas-Pennant; and whether he will now assure the House that the Government will fulfil its pledge and grant the inquiry?

Maj.-Genl. Seely: The communication referred to has been received and an answer sent. In the view of the Secretary of State, no case for a public inquiry has been made out. He has informed Miss Douglas-Pennant that he is prepared to publish the papers if the House desires it, and has asked what are her wishes in the matter. The Secretary of State has received no answer to his question, and, in view of the Debate which it is desired to have in another place, he has decided to lay the papers at once.

R.A.F. Officers (Technical Pay)

Lieut.-Col. Sir F. HALL asked the Under-Secretary of State to the Air Ministry whether any decision has yet been arrived at as to awarding technical pay to officers in Category B of the Royal Air Force; whether their duties are of less importance than those of the officers in Category A; and whether, when a decision is arrived at, in the event of it not already having been reached, emoluments will be made retrospective to temporary officers as and from the date of the Air Ministry Order of September 26, 1918?

Maj.-Genl. Seely: This matter has been very carefully considered, and it has been decided not to award technical pay generally to officers in category B, as their duties do not involve the same standard of technical knowledge as those of officers in category A.

Prize Bounty for Sinking a U-Boat

In the Prize Court on Monday, for sinking a German submarine, Lord Sterndale awarded £175 prize bounty to the pilot and mechanic of H.M. Seaplane 9860, at the rate of £5 a head of its crew of 35.

The occupants of the seaplane were Flight Sub-Lieutenant C. S. Mossop, R.N.A.S., D.S.C., and A. E. Ingledew, at the time serving as an air mechanic and as a flight cadet in the R.A.F. station, Cherbourg.

Mr. Ingledew made an affidavit that on August 18, 1917,

he was on H.M. Seaplane 9860, under the command of Flight Sub-Lieutenant Charles Mossop, on patrol 27 miles north of Cape Barfleur, when an enemy submarine was observed and attacked. The seaplane sank it. Lieutenant Mossop marked the foundering of the submarine, and there were no survivors. It was believed to be UB32, with 35 officers and men on board.

Lieutenant Mossop was killed on active service on August 12, 1918, and Mr. Ingledew was the sole survivor of the engagement with the submarine.

THE ROYAL AIR FORCE

London Gazette, May 27

The following temporary appointment is made:—
Director.—Lieut.-Col. (actg. Brig.-Gen.) C. L. Courtney, C.B.E., D.S.O., and to retain the actg. rank of Brig.-Gen. while so employed, from March 1 to April 30.

The following temporary appointments are made:—
Staff Officer, 1st Class.—(Air)—Maj. H. A. R. Aubrey, O.B.E., M.C.; May 1.

Staff Officer, 2nd Class.—(P.)—Capt. J. S. T. Bradley, on relinquishing the appointment of S.O., 1st Class, vice Lieut. H. J. G. Newman, M.B.E.; May 31.

Flying Branch

Majs. to be graded for purposes of pay and allowances as Lieut.-Cols. (A.):—T. O'B. Hubbard, M.C., A.F.C., while so employed; May 1. C. F. Portal, D.S.O., M.C., while so employed; May 1.

Maj. J. T. Babington, D.S.O., to be graded for purposes of pay and allowances as Lieut.-Col. (A. and S.) while so employed, from May 1 to 18.

Maj. O. T. Boyd, M.C., to be actg. Lieut.-Col. while so employed, from Jan. 18 to April 30.

Cpts. to be graded for purposes of pay and allowances as Majs. while employed as Majs. (A.):—(Hon. Maj.) F. B. Binney, C. H. Darley, D.S.C., D.F.C., D. G. Donald, H. S. Kerby, D.S.C., A.F.C., L. L. MacLean, C. E. H. C. Macpherson, R. D. Oxland, W. R. Read, M.C., H. A. Smith, M.C., E. R. Vaisey; May 1.

Cpts. to be graded for purposes of pay and allowances as Majs. while employed as Majs. (A. and S.):—E. G. Hopcraft, D.S.C., F. J. Linnell, C. H. C. Smith; May 1.

Cpts. to be graded for purposes of pay and allowances as Majs. while employed as Majs. (A.):—G. G. Cooke, D.S.C. (A'ship), J. Wann (K.B.); May 1. Capt. (actg. Maj.) M. Le Blanc-Smith to be Capt. (A.), and relinquishes the actg. rank of Maj. on reduction of establishment; April 24.

Capt. W. G. Pigott to be graded for purposes of pay and allowances as Capt. while employed as Capt. (K.B.), from April 1, 1918, to July 8, 1918.

To be actg. Cpts. while employed as Cpts. (A.):—Lieut. (Hon. Capt.) H. B. Russell, from Nov. 1, 1918, to April 30. Sec. Lieut. S. King-Smith, from (T.), from Dec. 13, 1918, to April 30.

Lieuts. to be graded for purposes of pay and allowances as Cpts. while employed as Cpts. (A.):—G. Andrews, H. M. Coombs, D.F.C., E. D. G. Galley, M.C., A.F.C., J. H. Jephson, A. G. Lamplugh, H. M. Moody, M.C., W. G. Preston, D.F.C., R. W. Reid, M.C., H. L. Rough, D.F.C., G. S. White, H. J. Whittingham; May 1.

Lieuts. to be graded for purposes of pay and allowances as Cpts. while employed as Cpts. (A. and S.):—W. R. Curtis, A. W. Fletcher, A.F.C., J. K. A. Jeakes, D.F.C., M. H. Rattray; May 1.

Lieut. T. A. Byers to be graded for purposes of pay and allowances as Capt. while employed as Capt. (K.B.); May 1.

Sec. Lieuts. to be graded for purposes of pay and allowances as Cpts. while employed as Cpts. (O.):—L. J. Chandler, D. G. Fleming; May 1.

Sec. Lieuts. to be graded for purposes of pay and allowances as Lieuts. while employed as Lieuts. (O.):—J. Bowen, W. H. Dunton, T. Q. Harvey, P. J. Hayes, A.F.C., K. C. McKenzie, A. Neeson, W. Smith, W. A. Thompson, H. J. White; May 1.

Sec. Lieuts. to be Lieuts. (A.):—(Hon. Lieut.) A. B. Clark, M.C.; April 6, 1918. H. W. Kelly; May 19, 1918. J. Hackett; Oct. 26, 1918.

W. L. Hemus (Temp. Capt., Worc. R.) is granted a temp. commn. as Sec. Lieut. (A.); Sept. 16, 1918, and to be Hon. Capt.

Flt. Cadet G. J. Cross is granted a temp. commn. as Sec. Lieut. (A.); Aug. 12, 1918.

The following are granted temp. commns. as Sec. Lieuts. (O.):—L. R. Griffin, M.M. (Sec. Lieut., R. Berks. R., T.F.), C. W. R. Hodges (Sec. Lieut., Norf. R., T.F.); Nov. 9, 1918.

The following are granted temp. commns. as Sec. Lieuts. (K.B.):—T. C. W. Haynes (Lieut., Manch. R., S.R.), and to be Hon. Lieut., H. A. B. Brough (Temp. Sec. Lieut., M.G. Corps), S. V. Evans (Sec. Lieut., Notts and Derby R., T.F.), H. H. Lockwood (Sec. Lieut., W. Rid. R., T.F.), H. McA. Peacock (Temp. Lieut., R. Fus.), and to be Hon. Lieut.; Oct. 29, 1918. A. T. T. Sleed (Temp. Sec. Lieut., Gen. List, S.A.); Nov. 10, 1918.

The following relinquish their commns. on ceasing to be employed:—Lieut. (actg. Capt.) G. E. Wait (Capt., W. Ont. R.); Dec. 12, 1918. Lieut. A. L. Galbraith (Lieut., C. Ont. R.); Dec. 18, 1918. Lieut. N. H. Raikes (Lieut., Canadians); Jan. 1. Sec. Lieut. (Hon. Lieut.) C. Frey, M.M. (Lieut., Sask. R.); Jan. 9. Lieut. G. M. Morrison (Lieut., New Bruns. R.); Jan. 14. Lieut. R. H. Kelley (Lieut., Quebec R.); Feb. 3. Sec. Lieut. (Hon. Lieut.) J. C. Kennedy (Capt., Arg. and Suth. Highrs.); Feb. 20. Lieut. W. E. James, M.C. (Lieut., Sask. R.); March 10. Lieut. M. R. Chidson (Lieut., R.G.A.); March 24. Lieut. (Hon. Maj.) A. G. Lincoln (Maj., E. Ont. R.); March 31. Sec. Lieut. T. Clarkson (Leic. R.); April 4. Sec. Lieut. (Hon. Lieut.) R. J. Weatherhill (C. Ont. R.); May 4. Lieut. (Hon. Capt.) R. P. Ward, M.C., D.F.C. (Capt., R. Welsh Fus.); May 7. Lieut. (actg. Capt.) C. F. Falkenburg, D.F.C. (Lieut., Quebec R.); May 9. Sec. Lieut. A. Lewin; May 12 (substituted for notification in *Gazette* March 4). Lieut. G. D. Gillie, M.C. (Lieut., R. Ont. R.); May 13.

(Then follow the names of 268 officers who are transfd. to the Unemployed List under various dates. We regret that owing to great pressure on our space, it is impossible to reprint this portion of the List.)

Lieut. J. Wingate resigns his commn. in order to resume his medical studies, and is permitted to retain his rank; Jan. 8.

The following Lieuts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank:—E. Evans; Jan. 29 (substituted for notification in *Gazette*, Jan. 28). H. J. W. McConnell; May 10. M. T. McKelvey; May 14. L. L. Miller; May 16.

The following Lieuts. relinquish their commns. on account of ill-health:—S. R. Lesley (Suss. Yeo.), W. Kirkpatrick (contracted on active service) (Lanark Yeo.), H. A. Scaby (R.F.A.); May 20.

Lieut. H. Roberts resigns his commn.; May 28.

The following Sec. Lieuts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—A. S. Helmer; March 8. H. J. Clark (contracted on active service); May 13. P. Girvin; May 20.

Sec. Lieut. (Hon. Lieut.) W. Cooke relinquishes his commn. on account of ill-health contracted on active service; May 3.

Sec. Lieut. W. H. Boite to take rank and precedence as if his appointment as Sec. Lieut. bore date April 7.

T. H. Delany is antedated in his appointment as Sec. Lieut. (A.); Aug. 8, 1918.

The surname of F. G. Tolmie is as now described, and not Tomlie, as stated in *Gazette* Aug. 30, 1918.

The notification in *Gazette* April 1 concerning Lieut. J. Wingate is cancelled.

The notification in *Gazette* Feb. 25 concerning Sec. Lieut. C. O. Carson is cancelled.

The notification in *Gazette* March 11 concerning Sec. Lieut. H. H. Bland is cancelled (*Gazette* notice of March 14 to remain).

The notification in *Gazette* of April 29 concerning Sec. Lieut. P. C. Brazier is cancelled.

The notification in *Gazette* of Jan. 14 concerning Sec. Lieut. A. S. Helmer is cancelled.

The notification in *Gazette* of Jan. 14 concerning Sec. Lieut. H. J. Welch is cancelled.

The notifications in *Gazette* of May 13 concerning the following officers are cancelled:—Lieut. F. C. Shirlcliffe, Capt. F. W. Walker.

Administrative Branch

Lieut.-Col. E. H. Davidson, O.B.E., M.C., to be Lieut.-Col. on relinquishing the appointment of Deputy Director at the Air Ministry; May 1.

Lieut.-Col. D. Powell, C.B.E., to be Lieut.-Col. from (S.G.); May 1.

Capt. (actg. Maj.) N. A. Daniell to be actg. Maj. whilst employed as Maj., from (S.O.), and relinquishes the grading for purposes of pay and allowances as (S.O.), from Jan. 7 to April 30.

Capt. (Hon. Maj.) (actg. Maj.) R. H. Howell retains the actg. rank of Maj. whilst employed as Maj. from (S.O.), from Nov. 18, 1918, to April 30.

Capt. G. R. Turner to be graded for purposes of pay and allowances as Maj. whilst so employed; May 1.

Cpts. to be graded for purposes of pay and allowances as Maj. whilst employed as Majs. (A.):—F. V. Cowell, E. E. R. Heathcote, (Hon. Maj.), T. M. Ross, A. M. Wilson; May 1.

Lieut. W. H. Osman to be graded for purposes of pay and allowances as Maj. whilst employed as Maj.; May 1.

Capt. R. J. G. Temple to be Capt. from (T.); May 17.

Sec. Lieuts. to be actg. Cpts. whilst employed as Cpts. (A.):—(Actg. Lieut.) R. E. Cunningham, from Dec. 15, 1918, to March 21; F. T. Dixon, from March 1 to April 30; H. J. De Wall, from March 12 to April 30.

Lieuts. to be graded for purposes of pay and allowances as Cpts. whilst employed as Cpts. (A.):—(Hon. Capt.) W. C. Alexander, E. L. Ardley, N. B. Bartman, (Hon. Capt.) R. S. J. Bond-Andrews, (Hon. Capt.) T. E. Gentles, (Hon. Capt.) F. C. McBride, L. J. N. Mackay, (Hon. Capt.) F. F. McKenna, J. A. McLaren, M.C., W. J. Matthews, (Hon. Capt.) C. W. A. Millar, P. J. Murphy, G. V. Walsh, L. L. Wight, M.C.; May 1.

Lieuts. to be graded for purposes of pay and allowances as Cpts. whilst employed as P.T. Officers:—J. Butterfield, A. E. Chilcott, L. E. Cording, M.C., W. H. Evans, N. M. Hoskins, K. S. Hunter, R. Kane, R. E. Martin, G. L. Moss, M.C.; May 1.

E. Newman (Capt., A.O.D.) is granted a temp. commn. as Lieut.; Aug. 8, 1918, and to be Hon. Capt.

Sec. Lieuts. to be graded for purposes of pay and allowances as Lieuts. whilst employed as Lieuts. (A.):—R. L. Raymond, W. R. Castings, G. A. Middleweek, W. J. Scarff, A. P. Johnston, G. E. Blake; May 1.

Sec. Lieuts. to be graded for purposes of pay and allowances as Lieuts. whilst employed as P.T. Officers:—A. E. F. McCreary, G. H. Price, R. N. Lamb; May 1.

Sec. Lieut. (Hon. Capt.) C. B. Dick-Cleland to be Sec. Lieut. from (T.), and to be Hon. Capt. and graded for purposes of pay and allowances as Lieut. while employed as Lieut.; May 1.

Sec. Lieuts. (A.) to be Sec. Lieuts. (A.):—V. D. Smith; Dec. 7, 1918. I. Holli-day; April 17.

Sec. Lieuts. (O.) to be Sec. Lieuts. (A.):—W. J. Barker; Nov. 18, 1918. J. W. Clarke; May 2. F. E. L. Elliott; May 7.

The following Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lieuts. (A.):—R. N. Preece; June 28, 1918. J. E. Forbes; Nov. 16, 1918. G. W. Colebourne; March 1. R. Craig; April 17.

The following relinquish their commns. on ceasing to be employed:—Sec. Lieut. (actg. Lieut.) L. M. King-Harman (Lieut., Rifle Bde.); April 2. Capt. A. J. R. Waller (Capt., Essex R.); May 2. Lieut. (actg. Maj.) Hon. F. W. Bampfylde (Lieut., Devon R.); May 15.

(Then follow the names of 61 officers who are transfd. to the Unemployed List under various dates.)

The following relinquish their commns. on account of ill-health, and are permitted to retain their rank:—Capt. J. Bushell; May 14. Sec. Lieut. J. G. Elliott; May 9 (substituted for notification in *Gazette*, May 16).

Sec. Lieut. C. O. Bennett resigns his commn.; May 28.

The surname of E. H. W. Darby is as now described, and not Darley, as stated in *Gazette*, Feb. 7.

The notification in *Gazette* Feb. 14 concerning Sec. Lieut. G. P. Forbes is cancelled.

The notification in *Gazette* of April 29 concerning Lieut. T. F. X. Smallwood is cancelled.

The notification in *Gazette* of May 6 concerning Capt. (Hon. Maj.) (actg. Maj.) R. H. Howell is cancelled.

Technical Branch

Majs. to be graded for purposes of pay and allowances as Lieut.-Cols. while employed as Lieut.-Cols., Grade (A):—W. J. Fernie, O.B.E., J. G. Bayes, O.B.E.; May 1.

Cpts. to be graded for purposes of pay and allowances as Lieut.-Cols. while employed as Lieut.-Cols., Grade (A):—L. B. Cook, W. W. Farthing, O.B.E.; May 1.

Maj. R. F. Le Bailly to be Maj., Grade (A), from (Ad.); April 28.

Capt. (actg. Maj.) D. M. P. Riach, M.B.E., to be Capt., and retains the actg. rank of Maj., Grade (A), from (S.O.); April 21 to April 30.

Cpts. to be graded for purposes of pay and allowances as Majs., Grade (A), while so employed:—A. Hunter, F. W. H. Lerwill; May 1.

Capt. L. Auker, O.B.E., to be graded for purposes of pay and allowances as Maj., Grade (B), while so employed; May 1.

Cpts. to be graded for purposes of pay and allowances as Maj. while employed as Maj., Grade (A):—J. D. Blyth, J. J. Botterill, A. Clayton, S. Curtis, W. J. B. Curtis, O.B.E., A. Graves, (Hon. Maj.) A. E. Hatton, W. A. B. Laing, T. Martin, O.B.E., R. K. Paton, W. O. Pearce, E. S. Sturdee, O. C. Williams, K. J. Young; May 1.

Capt. J. T. Matthews to be graded for purposes of pay and allowances as Maj. while employed as Maj., Grade (B); May 1.

Lieuts. to be graded for purposes of pay and allowances as Majs. while employed as Majs., Grade (A):—F. B. Adams, C. A. Doherty, H. V. Snook; May 1.

Sec. Lieuts. to be graded for the purposes of pay and allowances as Majs. while employed as Majs., Grade (A):—C. C. Lees (and to be Hon. Lieut.), R. B. Stephenson, A. J. Toomer; May 1.

Capt. H. G. Henley to be Capt., Grade (A), from (A); Feb. 17.

Capt. W. E. G. Beaufort-Greenwood to be Capt., Grade (A), from (S.O.); May 1. Lieuts. to be actg. Capt. while employed as Capt., Grade (A):—G. A. Lawler, from Oct. 1, 1918, to April 30 (substituted for notification in *Gazette* Feb. 21). G. W. M. Whitton, from April 5, to April 30.

Sec. Lieut. J. W. Hoskings, M.B.E., to be actg. Capt. while employed as Capt., Grade (A), from Feb. 1 st April 30.

Sec. Lieut. (actg. Lieut.) A. G. Ridgdon to be actg. Capt. while employed as Capt., Grade (B), from Nov. 30, 1918, to April 30.

Lieuts. to be graded for purposes of pay and allowances as Capt. while employed as Capt., Grade (A):—H. A. Braddock, P. Burke, H. H. Chivers, A. H. Ellis, (Hon. Capt.) W. H. Ellison, R. P. Grant, G. S. Hallas, M.C., H. E. Hazlehurst, S. T. Heath, G. W. Hippisley, (Hon. Capt.) C. Hole, T. Kerr-Jones, A. H. Meldrum, (Hon. Capt.) C. R. G. Topham, G. M. W. Whitton; May 1. Lieuts. to be graded for pay and allowances as Capt. whilst employed as Capt., Grade (B):—F. G. J. Didden, G. F. Drudge; May 1.

Lieut. J. R. S. Borman to be Lieut., from (Ad.), and to be graded for purposes of pay and allowances as Capt. whilst employed as Capt., Grade (B); May 1. Sec. Lieuts. to be graded for purposes of pay and allowances as Capt., whilst employed as Capt., Grade (A):—C. A. Assiter, and to be Hon. Lieut., L. H. Bainton, and to be Hon. Lieut., H. C. Bishop, and to be Hon. Lieut., H. L. Brown, W. G. Browne, P. V. Davies, E. W. Dawson, L. A. Hooper, W. G. Kentfield, H. D. Staiar, and to be Hon. Lieut., B. P. K. Walshe; May 1. Sec. Lieuts. to be graded for purposes of pay and allowances as Capt., whilst employed as Capt., Grade (B):—L. W. Allen, and to be Hon. Lieut. F. A. Cherry, J. H. Tanton; May 1.

Lieut. E. S. Pearse to be Lieut., Grade (B), from (S.O.); April 15. Sec. Lieut. M. Sheriff, D.C.M., to be actg. Lieut. whilst employed as Lieut., Grade (A), from Dec. 2, 1918, to April 30.

Lieut. S. T. Kemp to be graded for purposes of pay and allowances as Lieut., whilst employed as Lieut., Grade (A); May 1.

Lieut. W. J. Hemby to be graded for purposes of pay and allowances as Lieut., Grade (B), from Dec. 1, 1918, to April 30.

Lieuts. to be graded for purposes of pay and allowances as Lieut. whilst employed as Lieut., Grade (B):—W. Gregory, W. J. Hemby; May 1.

Sec. Lieuts. to be graded for purposes of pay and allowances as Lieuts. whilst employed as Lieuts., Grade (A):—W. T. Henry, L. J. Lester, P. G. May, E. J. Hindsley, S. Jupp, B. E. D. Pratt, H. E. Powell, H. H. Fell, J. G. Peacock, W. J. Root, and to be Hon. Lieut., J. R. Cross, J. Wilson, R. N. Tweedy, and to be Hon. Lieut., C. W. Grey, A. Wombwell, T. Honor, H. D. Lumb, R. W. Edwards, W. Gill, W. Wheatley, P. J. Whitehead, H. Weakley, C. H. V. Hayman, G. T. H. Pack, A. E. Case; May 1.

Sec. Lieuts. to be graded for purposes of pay and allowances as Lieuts. whilst employed as Lieuts., Grade (B):—J. O. Miles, A. Crook, and to be Hon. Lieut., W. G. Shipwright, J. Dale, W. F. Arnold, A. E. Wycherley; May 1. Sec. Lieut. J. H. Lester to be Lieut., without pay and allowances of that rank; April 18.

Sec. Lieut. R. A. Bell to be Sec. Lieut., Grade (A), from Grade (B); March 7. Sec. Lieut. H. P. Bolt to be Sec. Lieut., Grade (A), from (Ad.); May 7.

Sec. Lieut. R. S. Davery to be Sec. Lieut., Grade (B), from (A); Jan. 16.

Sec. Lieuts. (Ad) to be Lieuts., Grade (B):—(Hon. Lieut.) U. B. Gilbert, and to be Hon. Lieut.; Oct. 1, 1918. B. H. W. Hatch; May 12.

Sec. Lieut. R. E. Wilson (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lieut.; June 24, 1918.

(Then follow the names of 46 officers who are transfd. to the Unemployed List under various dates.)

The following Sec. Lieuts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—H. T. Hickey (contracted on active service); May 17. C. H. MacKinnon; May 20.

The notification in the *Gazette* of Jan. 7 concerning Lieut. (actg. Capt.) J. Wingate is cancelled.

The notification in *Gazette* of March 18 concerning Capt. W. E. Smith is cancelled.

Medical Branch

H. A. Treadgold is granted a temp. commn. as Capt., and to be Temp. Maj. without pay and allowances of that rank; Sept. 2, 1918, seniority, April 1, 1918 (substituted for notification in *Gazette* of Sept. 24, 1918).

Capt. A. G. Graham is antedated in his appointment to July 1, 1918.

Transferred to the Unemployed List.—Capt. J. E. Cable; May 8. Capt. C. K. Attlee; May 11. Capt. D. A. MacPherson; May 13.

Chaplains' Branch

Transferred to the Unemployed List.—Capt. W. H. B. Gipps; May 9. Capt. W. Galpin; May 18.

Memoranda

The following are granted the actg. rank stated against their names, with effect from May 1:—

To be Acting Lieut.-Colonels.—Lieut.-Col. A. D. Cunningham, while employed in the Airships Department, Admiralty; Lieut.-Col. B. H. O. Armstrong, C.M.G., while employed as Director of Inland Works; Lieut.-Col. T. D. Mackie, C.M.G., O.B.E., while Director of Air Construction Service.

To be Acting Lieut.-Colonels.—Maj. A. V. J. Richardson (substituted for the notice in *Gazette* of May 20); Maj. S. B. F. Carter, O.B.E., while employed as Assistant Director of Air Construction Service; Maj. J. G. Bayes, O.B.E., while employed as Area Officer in the Department of A.C.S.; Maj. W. J. Fernie, O.B.E., while employed as Area Officer in the Department of A.C.S.; Maj. J. D. K. Restler, while employed as Chief Electrical Engineer in the Department of A.C.S.; Maj. C. Barber, while commanding a Stores Depot; Maj. R. Grey, while specially employed; Maj. L. Tomkinson, while specially employed; Capt. G. W. Parkinson, M.C., while employed as Assistant Director of Inland Works; Capt. C. Cookson, while employed as Assistant Director of Inland Construction; Capt. W. W. Farthing, O.B.E., while employed as Area Officer in the Department of A.C.S.; Capt. L. B. Cook, while employed as Area Officer in the Department of A.C.S.; Capt. O. Lindquist, while commanding a stores depot.

To be Acting Majors.—Capt. R. A. Laws, while specially employed with the Department of A.W.B.; Capt. J. C. Watson, while specially employed with the Department of A.W.B.; Capt. D. Goad, while employed as Senior Electrical Officer in the Department of A.C.S.; Capt. A. Young, while commanding a stores depot; Capt. J. R. Harland, while employed as Officer i/c of Maintenance in the Department of A.C.S.; Capt. E. F. W. Cherry, while employed as Officer i/c of Stores in the Department of A.C.S.; Capt. J. P. Coleman, A.F.C., while specially employed; Capt. P. G. N. Ommanney, while employed in the Airship Department, Admiralty; Capt. J. E. M. Pritchard, while employed in the Airship Department, Admiralty; Capt. A. Price-Reed, while employed in the Airship Department, Admiralty; Capt. G. Somers-Clarke, while specially employed; Capt. F. L. Robinson, M.C., while specially employed; Capt. C. R. Carr, while specially employed; Capt. S. W. Duckley, while specially employed; Capt. F. S. Moller, M.C., while specially employed; Capt. G. L. Paine, while specially employed; Lieut. W. A. Legg, while employed as Chief Water Engineer with the Department of A.W.B.; Lieut. H. S. Watson, while employed as Deputy Chief Electrical Engineer with the Department of A.W.B.; Capt. H. R. B. Hull.

To be Acting Hon. Majors.—Capt. G. W. C. Kaye, while specially employed; Capt. H. Myers, while specially employed.

To be Acting Captains.—Lieut. F. M. F. West, V.C., M.C., while employed as Liaison Officer for Air Intelligence; Lieut. F. Edwards, while employed in the Airship Dept., Admiralty; Lieut. W. J. C. Kendall, M.C., while employed as Officer i/c of R.A.F. Repatriation Records; Lieut. G. N. Trace, while specially employed; Lieut. A. D. Carey, while specially employed; Lieut. F. Lord, while specially employed; Lieut. W. R. S. Humphreys, while specially employed; Lieut. B. R. Bostock, while specially employed; Lieut. E. Brown, while specially employed; Lieut. J. C. Cantrill, while specially employed; Lieut. E. Burney, M.C., while specially employed; Lieut. W. S. C. Smith, while specially employed; Lieut. W. B. Thomson, while specially employed; Lieut. F. V. Robinson, while specially employed; Sec. Lieut. J. W. Tattersall, while specially employed; Sec. Lieut. D. MacDougall, while specially employed; Sec. Lieut. N. Bucknall, while specially employed; Sec. Lieut. W. Borland, while specially employed.

To be Acting Lieutenants.—Sec. Lieut. H. D. Lumb, while employed in the Airship Department, Admiralty; Sec. Lieut. W. A. Fowler, while employed as Group Educational Officer; Sec. Lieut. M. Sheriff, D.C.M.

The following are granted the hon. rank of Captain:—Lieut. J. B. Runci-man; June 11, 1918. Lieut. J. G. Halsam; Nov. 9, 1918. Sec. Lieut. (actg. Capt.) G. H. Hill; March 31.

(Then follow the names of 46 Overseas Cadets who are granted temporary commissions as Sec. Lieuts.)

Col. W. B. Caddell relinquishes his commn. on ceasing to be employed, and is granted the hon. rank of Brig.-Genl.; May 28.

Capt. (actg. Maj.) W. T. Blake (Oxon. and Bucks. L.I.) relinquishes his commn. on account of ill-health; May 13.

A French Commercial Aircraft Trial

UNDER the title of the "Grand Prix de l'Avenir," a trial is being organised in France by the French journal, *L'Avenir*, with the object of demonstrating the practicability of aircraft for touring and transport purposes. It will be held under F.A.I. rules, with the patronage of the Aero Club of France, and be open to competitors of French or Allied nationality using machines of French or Allied construction.

The full distance will be about 3,000 kilometres, and will be flown in six stages. The first will be from Paris to Angers, via Rouen, Havre, Deauville and Dinard; the second from Angers to Bordeaux by Romorantin; the third from Bordeaux to Marseilles, the fourth from Marseilles to Lyon via Montpellier; and the fifth from Lyon to Metz via Strasbourg; and the sixth from Metz to Paris via Lille. There will be certain controls on this course, details of which will be arranged later. The controls will be open between 7 a.m. and 8 p.m., but no machine will be allowed to start after 3 p.m. The start will be from Paris on August 26, and all machines must arrive in Paris by the closing time on September 1.

Entries must be made to the Aero Club of France before 6 p.m. on June 30, the fee being 1,000 francs, which is returnable on the machine completing the first stage in accordance with the regulations.

The prizes amount to 100,000 francs, and will be divided into two groups of 50,000 francs. The first section will be split up into prizes of 20,000, 15,000, 10,000 and 5,000 francs, which will be awarded according to the general classing, while the other section will be divided into five sets of prizes of 3,000, 2,000 and five of 1,000 francs, to be given on the classification for each of the first five stages.

The general classification will be by a system of marking. A non-stop run will count ten marks, while a machine which is a day late at a control will lose 3 marks. Each landing outside a control will cost one mark, and replacements will be penalised, changing a wheel, propeller, rudder, elevator etc., costing one mark, a radiator two marks, a cylinder, wing, etc., five marks.

Two or three climbing tests will be made before the start to determine the load to be carried. The competitor will declare the weight, and the machine will have to carry this to a height of 3,500 metres above the point of departure within one hour, and on descending, the machine must show the starting weight minus only the weight of the normal amount of fuel and lubricant consumed. When this weight has been decided upon, it will be painted on the fuselage or rudder of the machine.

The machine will be stamped and sealed before the start, and spare parts may be sealed also, but they will have to be carried on board.

At least one passenger must be carried; passengers must be over 18 years of age, and weigh at least 65 kilograms.

Over the Grand Canyon

A SQUADRON of four Airco (de H) machines has returned to Washington after a 3,300-miles flight to the Gulf of Mexico and the Pacific Ocean. The actual flying time for the 3,300 miles was 1,940 minutes, an average speed of 101 miles an hour. In the trip they crossed the mountain "backbone" of the continent at a height of 16,000 ft and dipped into the famous Grand Canyon of the Colorado River to a distance of 600 ft. below the rim. This was the first flight ever attempted across the Grand Canyon.

THE "APRON SCREEN" DEFENCE

THE Royal Commission on Awards to Inventors, Mr. Justice Sargant presiding, on May 26, heard evidence in a claim by Dr. Prassone, Director of the Italian Aeronautical Instruction Department, and Maj. Avorio, a major of Engineers in the Italian Army, as joint owners of a patent for a kite balloon used in the "apron screen" used in the defence of London.

It was stated that the balloon was spherical and had a conical appendage, which had three further attachments known as stabilisers. The balloon itself was filled with hydrogen, and the appendage and three stabilisers were filled with air. The balloon came into use only a comparatively short time before the end of the War. The advantage claimed were lifting power, stability and steady rising due to two of the stabilisers being inflated before it left the ground.

It was stated that the "apron" defence of London consisted of pianoforte or other wire stretched between two or more balloons, and attached to this were pianoforte wire streamers, meant to entangle enemy aircraft. No enemy aircraft had been actually caught in the "apron screen."

In March, 1918, two balloons were brought from Italy for experimental purposes, and later Dr. Prassone and Maj. Avorio came to this country. On April 16 Dr. Prassone

was asked to make an offer. The question of royalty came up incidentally, but the real negotiations were about actual purchase. On April 17 Dr. Prassone wrote mentioning £80,000 as a proposed purchase price. The price of a 1,050 cubic metre balloon was £1,116, and the 2,000 cubic metre balloon cost 1,823. The Government had bought three of the smaller size, and 20 of the larger, the cost being roughly £40,000. Apparently only nine had been delivered.

On the question of a royalty basis, it was stated that 15 per cent. had been suggested by the claimants at a time when a much larger use was contemplated. On the basis of £40,000 spent, it was submitted by the Crown that the royalty should be 5 or 7 per cent. For the claimants it was urged that in any event the royalty ought not to be less than 10 per cent., together with an agreed sum of £500 for expenses.

The Chairman asked when the first suggestion of an "apron screen" for the defence of London was made.

Mr. Trevor Watson, representing the Ministry of Munitions, said that on March 15, 1913, a suggestion sent to the Government had a general idea of a net, suspended by means of a skin filled with gas and chains hanging down to catch the aircraft.

The decision will be communicated to the Treasury in due course.



A Trial Trip by "R 33"

THE "R 33," the Armstrong-Whitworth rigid airship, on May 27 made a seven-hour trial run. Ascending at Selby with Maj. Thomas in charge, she circled round Barlow and Brayton, and then headed east over the North Sea, passing north of Hull. Turning north she went up to Whitby and Newcastle, circling over the Elswick works and afterwards making her way south *via* York. A successful landing was made at Selby between eight and nine o'clock.

"R 34" up for 21 Hours

AFTER an adventurous voyage, which lasted for 21 hours, the "R 34" arrived safely at her station at East Fortune, Haddingtonshire, on May 29. She ascended from the Beardmore aerodrome at Inchinnan, the previous afternoon, piloted by Col. Hicks, and carrying Gen. Maitland, Director of Airship Services, and a crew of 31. As she approached the East Coast, she ran into thick mist, and after passing East Fortune cruised out to sea. In the fog they had difficulty in making their way back, and then found it was impossible to effect a landing before morning. Then the fog was as bad as ever, and as there was nothing to do but remain aloft, the airship cruised down to Yorkshire. At 3.30 p.m. she returned to East Fortune, and a safe landing was effected in spite of the mist and wind.

The Auction Sale

THE first sale of aeroplane and aircraft material held at Hendon on Monday was a success, although the prices obtained were not quite up to what had been anticipated. Sixteen complete machines were offered, realising a total of £3,155, the purchasers and prices being set out below:—

Avro, 3,501, 110 h.p. Le Rhone engine (Cambridge School of Flying)	360
4,234, similar machine (Ogilvie and Partners)	360
6,245, similar machine (Bournemouth Aviation Co.)	300
4,340, similar machine (Capt. Fanstone, R.A.F.)	310
3,505, similar machine (Bournemouth Aviation Co.)	310
3,510, similar machine (Capt. Rutherford, R.A.F.)	310
Armstrong Whitworth, 7,384, 160 h.p. Beardmore engine (Lieut. Howard, R.A.F.)	260
D 5,150, similar machine (Capt. Warren)	260
British experimental, 2 E., C 7,101, 90 h.p. R.A.F. 1A engine (Aircraft Manufacturing Co.)	80
A 1,298, similar machine (Lieut. Howard, R.A.F.)	90
D.H. 6, C 2,101, R.A.F. 1A engine (Aircraft Manufacturing Co.)	95
C 2,943, similar machine, 80 h.p. Renault engine (Bournemouth Aviation Co.)	100
C 6,503, similar machine, R.A.F. 1A engine (Capt. Fanstone, R.A.F.)	85
C 5,220, similar machine, Curtis OX 5 engine (Mr. Grahame-White)	95
C 5,224, similar machine, with ditto engine (less altimeter (Mr. Grahame-White)	80
C 5,231, similar machine (single-seater) (Mr. Plumridge)	60

Altogether some 400 lots were put up, and generally the prices ruled low, one lot of 700 hollow spruce struts, 5 ft. long, only realising £5.

The Tarrant Triplane Accident

IT is with great regret that we have to record that the pilot of the Tarrant triplane, Capt. F. Dunn, succumbed to his injuries on May 29, without regaining consciousness. The inquest on the body of Capt. P. T. Rawlings has been adjourned until June 18, as the Air Ministry enquiry is not yet complete.

A Municipal Aerodrome for Blackpool

AT a meeting of the Blackpool General Purposes Committee a decision was reached that a municipal aerodrome should be secured as early as possible, and a special committee was appointed to go into the whole question. The intention is to make it available to all comers, and when it is ready flying from the foreshore will be done away with.

Aerial Mails to Greece

IT has been announced in Athens that the Italian Government has informed the Greek Government that it will start giving effect to the Convention recently signed between the two countries for air mail service. Two aerodromes are to be established, the one at Corfu, the other at Brindisi.

Brazil-Argentine Aerial Mails

WORD comes from Rio de Janeiro, that Messrs. Handley Page have announced that a Brazilian-Argentine air mail service will start on July 1. Preparation is being completed and landing sites have been bought along the Atlantic from Pernambuco to Buenos Aires.

Aerial Touring in Switzerland

A COMPANY is now being formed in Zurich for organising trips round the lakes by waterplane. Its first stations will be at Lausanne, Lucerne, Lugano, Geneva, Thonne-Interlaken and Zurich. Later it is proposed to arrange stations at Locarno, Saint Moritz, Montreux, etc. The company will have a capital of 1,500,000 francs, and the intention is to keep it exclusively Swiss as regards capital, personnel and material.

Anglo-Swedish Air Routes

IT is understood that some officers of the R.A.F. are now in Scandinavia, with a view to ascertaining the possibility of arranging landing grounds in connection with flights from England. Two representatives are now in England, and visited Hull on Monday to inspect the facilities for the proposed ferry service between Sweden and England.

Air Routes in the U.S.

A MAP has been prepared by the U.S. Army Air Service showing the aerial routes which have been flown over and reported upon by the U.S. military flyers under orders from the Director of Military Aeronautics. This indicates aerodromes, fields suitable for landing where supplies can be obtained, fields suitable for emergency landing, and indication is also given as to whether the terrain along the route is good or poor. The map indicates that already a very large number of routes in the Southern States have been charted, but that very little has been done in the Upper Eastern, Northern and Western States.

SIDE-WINDS

THE War has provided many opportunities for successful endeavour, and a case in point is that of Aircraft General Sundries, Ltd., of which Miss Doris M. Nicholson is the Managing Director. Two years before the War Miss Nicholson had gone mad on flying, as she puts it, and used to spend most of her time at the Hendon Aerodrome. Anxious to do something to help on the aircraft industry, she decided to utilise her business ability by endeavouring to meet the demand for small aeroplane parts. Her efforts were so successful that she felt she could launch out for herself, and the result was the birth of Aeroplane General Sundries, Ltd. At first a tiny office sufficed, and Miss Nicholson acted as her own buyer, salesman, stenographer, book-keeper and packer, but more and more business flowed her way, and very soon the days of her one-woman business were over. Fresh capital was introduced, representatives were appointed, a factory was started, and so the tale gradually grew until the business became what it is to-day. Now the firm is branching out into the motor business. They have excellent commodious premises, where they can handle all motor parts and accessories as well as the old lines of aircraft parts and fittings. They have their representatives throughout the provinces, and have a most complete buying organisation.

In a recent series of articles by Mr. E. O. Williams tables were published of the weight of steel tubes. We are now informed by Messrs. Accles and Pollock that these tables are out of date and may be a little misleading in so far as they are, generally speaking, somewhat on the heavy side. We would, therefore, recommend readers desiring the very latest information on particulars of steel tubes to write to Messrs. Accles and Pollock, Ltd., Oldbury, Birmingham, who will be pleased to forward their latest booklet on this subject.

WITH commendable enterprise, the Aircraft Manufacturing Co., Ltd., have just started a series of photographic post-cards, which will, we are sure, be appreciated by a large number of those who are interested in flying machines. The first set is to hand, and consists of photos. of Airco (De H.) machines of the No. 4, 4A, 9 (two views), 9A and 10 types. The price of the packet of six cards is 1s., and enquiries should be addressed to the firm at Edgware Road, The Hyde, Hendon, N.W. 9.

VISITORS to the Isle of Wight will note with interest that the Supermarine Aviation Co. hope to complete arrangements for flying trips from Southampton to Ryde, Ventnor, Sandown and Shanklin, at Whitsun. Ten flying-boats are being prepared for the service, the idea being to use five boats and have the others in reserve, each set being flown on alternate days, thus allowing ample opportunity for inspection and overhaul.

CLIFFORD B. PRODGER and his famous leather suit have been looked upon as inseparable, but on Sunday he appeared

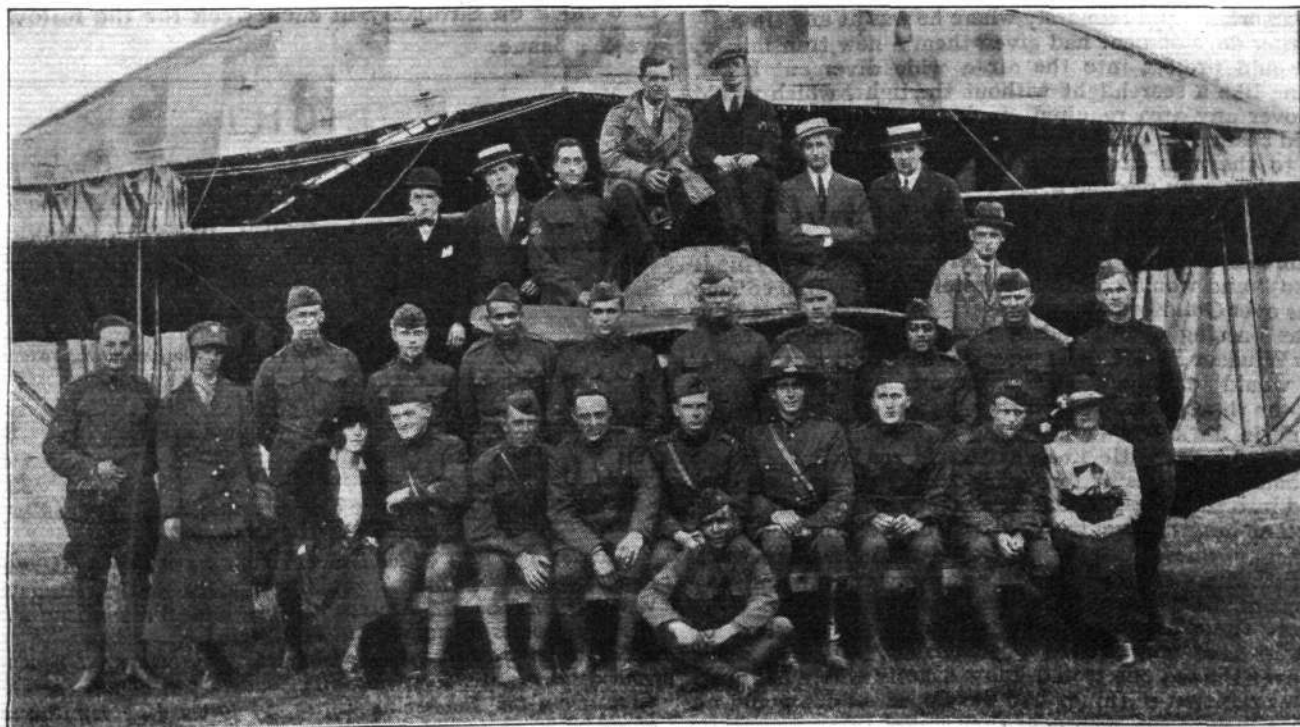
in a new rig. This is a very light slip-on leather overall, waterproof, oil-proof and fire-proof. We understand from Mr. Prodger that it was specially made for him by Messrs. George Williams and Co., 33, Albert Place, W.C. 1, and in view of the large number of enquiries received from other envious pilots, he wishes to let them know that he hopes to get it into production soon.

THE recent visit of the British aeroplanes to the Spanish capital appears to have made a very fine impression there; the Madridenos were amazed as the "Bristol" Fighter, circling about the big Handley Page, performed such will-o'-the-wisp evolutions as they had never before seen. "Every now and then," one writer chronicles, "the two seater sprang ahead, revelling in her superior speed. The wireless apparatus surmounting the new Post Office seemed in imminent danger of being demolished as the aeroplanes charged at the breathless crowds and rose again to skim the house-tops. The tour has been a revelation of British efficiency and daring, and the chief actors temporarily supplanted the toreadors in popular favour. Little crowds have followed them everywhere, waving hats and shouting full-throated 'bravos.'"

DETAILS of the return trip of the "Bristol" Fighter have not been so widely chronicled as some of the others. The schedule of the times occupied makes interesting reading. Madrid was left at 6.40 a.m. and a descent was made at Vittoria some 2 hours and 20 minutes later. At 10.30 the journey to Pau was started and that venue was reached at 12.40 p.m. Pau to Tours occupied from 1.55 to 5.20 p.m. and from Tours, which was left at 6.30, the "Bristol" made a non-stop flight to Hawkinge Aerodrome, where the machine landed at 9.45 p.m. The total time in the air during the journey was thus about 11 hours. When one remembers that the last part of the journey was accomplished in the dark the performance amply justifies the admiration with which the aeroplane and its pilot were regarded in Madrid.

WITH characteristic forethought, the Lep Transport and Depository, Ltd., who are the owners of the handsome Aerial Booking Office in Piccadilly Circus, have secured the concession to carry the first parcel of goods ever carried by air across the Atlantic, and full credit must be accorded to them for their faith in the giant Handley Page—for this is the machine they have selected. We are informed that all arrangements have been made to pick the parcel up, immediately upon the arrival of the Handley Page in Ireland, so that not a moment shall be lost in "delivering the goods."

It appears that the report as to M. Esnault-Pelterie resigning his position as head of the French Society of Aircraft Constructors was—well, somewhat premature. At any rate, he now says he is going to carry on, and has been unanimously re-elected.



A party of Americans, all students of King's College, London, who recently paid an enjoyable "flying" visit to the "L. and P." aerodrome.

RESETTLEMENT

THERE are many officers and men of the R.A.F., who are demobilised or are about to be demobilised.

In order to assist those who are undecided or are seeking advice as to their prospects in civil life, the Editor has arranged for an expert, with wide experience of service, industrial and educational conditions, to give advice to those who may solicit it through the medium of this Journal.

Applications, which must be in writing, should be marked *Resettlement*, and addressed to the Editor, FLIGHT, 36, Great Queen Street, Kingsway, W.C. 2. They will be dealt with in these columns, as far as possible, in rotation.

AMBITIOUS, R.N.A.S.—There are two main types of employment in civilian aviation:—(1) Technical; (2) Piloting. For (1) considerable practical and theoretical training is required such as a diploma or degree in mechanical engineering at some recognised college or university, and some practical workshop experience. For (2) a certain amount of technical training is required in addition to flying experience. It is fairly clear that as comparatively few personnel will be required in the immediate future for commercial aviation only those possessing the highest qualifications will, in the ordinary course of events, succeed in obtaining employment in civilian aviation. We think that unless you are prepared to take a course of mechanical or aeronautical engineering of at least two years duration you will be best advised to seek employment based on your pre-War training.

H.S.W.S., Ex-OFFICER, R.A.F.—There are certainly as good prospects for draughtsmen in aeronautical engineering as in any other branch of engineering. With regard to a better position later on, this will depend on the efforts you make to acquire the necessary experience for design. In aeronautical engineering (design) a sound knowledge of mathematics is essential in order to study the results of research and to apply the knowledge gained to practice. We regret you are not satisfied with your present position, but in view of the present labour market you should be very cautious.



Wireless Developments

SPEAKING at a luncheon at the Aldwych Club the other day, Mr. Godfrey Isaacs said that, in dealing with the air, he would speak only of the things which had been achieved. Aeroplanes and airships would play a very great part in the future both in respect of travel and also of communication. Mr. Handley-Page had said to him the other day that he thought he was going to compete with wireless in communication. He would not be able to do that until he could travel 12,000 miles without a stop in something less than a second.

Whether they competed or not it was the intention of wireless telegraphy to help the aeroplane and the airship. There was a simple means of communicating by wireless with aeroplanes and airships, and there was no doubt that the distance over which they would be able to communicate would increase considerably; in fact, it was increasing daily. The assistance which wireless could give to the aviator was great. It could provide him with the latest development of wireless direction. The wireless direction-finder would enable the pilot to ascertain approximately where he was at any time.

A further development had given them a new transmitter, which would project into the air a wide divergent beam, something like a searchlight without the light, which would extend over any area required, or, if it was desired, a concentrated beam over some small place, and these beams would convey to the men in the sky automatically the name of the place they were passing over.

Assuming that a man was passing over the town of Guildford; from the moment he traversed the region over which this beam was playing, he would receive the signal, "This is Guildford," and would continue to receive that signal so long as he was over Guildford and no longer. In just the same way, if he was passing over Windsor Forest he would be told: "This is Windsor Forest," and when he came to his aerodrome, a beam would tell him "This is Hendon Aerodrome." In that way he thought that one of the greatest dangers to pilots in fog and in darkness was disposed of.

It required very little imagination to see, a little while hence, some thousands or tens of thousands of names being projected into the skies, so that in whatever part of the world an aeroplane might travel it would be told continuously and automatically where it was. It would be as easy to learn in the skies where they were as in a railway train when they looked out of the window to see the name of a station.

Similarly these beams could be equipped to lightships or to buoys in fixed and defined positions so that even when passing over the sea one would know exactly where one was. When that position of things had developed, pilots would no longer lose themselves, wherever they might be.

NEW COMPANIES REGISTERED

AIRCRAFT TUBES AND PRESSINGS, LTD.—Capital £15,000, in £1 shares.—Directors: W. W. Hughes, G. V. Stringer, A. Millward, and W. E. Warden. Solicitors, Jeffery Parr, Hasell and Parr, 20, Temple Row, Birmingham.

AUTOMOBILE AND AIRCRAFT INSURANCE CO., LTD., General Buildings, Aldwych, W.C. 1.—Capital £100,000, in £1 shares. The promoters are the General Accident, Fire and Life Assurance Corporation, Ltd. First directors: Rt. Hon. Lord Morris, P.C., K.C.M.G., F. Norrie-Miller, J.P., F.E.I.S., Sir John Taverner, K.C.M.G., Col. S. Wishant, J. R. Yates, and P. F. Brittain.

GENERAL MOTOR TRANSPORT AND AGENCY CO., LTD., 107, Regent Street, W.—Capital £10,500, in 10,000 preference shares of £1 each and 10,000 ordinary shares of 1s. each. Manufacturers and dealers in tractors, aeroplanes, etc. First directors: B. L. Teeling, J. J. Murphy, and H. E. H. Tripp.

SHORT BROTHERS (ROCHESTER AND BEDFORD), LTD., 29-30, Charing Cross, S.W.—Capital £150,000, in £1 shares. Acquiring business of aeronautical engineers carried on by Short Brothers at Rochester, at Cardington, Beds., at Battersea, S.W., and at 29-30, Charing Cross, S.W. First Directors: H. O. Short, A. I. M. Duncan, and E. B. Parker.



Aeronautical Specifications Published

Abbreviations:—cyl.=cylinder; I.C.=internal combustion; m.=motors.

APPLIED FOR IN 1916

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

Published May 29, 1919

- 15,502. R. A. BRUCE. Devices for attaching seaplanes, etc., to floats. (126,029.)
- 15,619. SOPWITH AVIATION Co. and T. SOPWITH. Tail planes. (126,031.)
- 16,073. A. V. ROE. Strut socket. (126,040.)
- 16,860. SOC. LORRAINE DES ANC. ETAB. DE DIETRICH ET CIE. Carburetors in aviation motors. (126,063.)
- 16,924. J. A. PETERS. Tail planes. (126,065.)
- 16,925. J. A. PETERS. Anchoring of struts. (126,066.)
- 16,968. W. J. BROWN and H. SHAW. Hollow section propeller. (126,068.)
- 17,091. T. SLOPER. Aeroplane wheel bearings. (126,072.)
- 17,440. J. J. MAYROW. Aircraft wings and aerofoils. (126,085.)
- 17,623. SOC. ANON. DES ETAB. HUTCHINSON. Means for maintaining staunchness of petrol tanks when pierced by bullets. (126,087.)

APPLIED FOR IN 1918

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

Published May 29, 1919

- 5,800. J. J. MORCH. Aircraft propellers. (126,105.)
- 7,779. P. G. L. JEZZI. Screw propellers for aircraft. (126,153.)



If you require anything pertaining to aviation, study "FLIGHT's" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages li, lii, liii and liv)

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IN order that "FLIGHT" may continue to be published at the usual time, it is now necessary to close for Press earlier. All Advertisement Copy and Blocks must be delivered at the Offices of "FLIGHT," 36, Great Queen Street, Kingsway, W.C. 2, not later than 12 o'clock on Saturday in each week for the following week's issue.

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